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TERRAIN EVALUATION OF A PORTION OF THE FORT GREELY AUTOMOTIVE TEST COURSE

by

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Sponsored by

U. S. Army Arctic Test Center
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CORPS OF ENGINEERS
Vicksburg, Mississippi

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FOREWORD

This study was performed by the U. S. Army Engineer Waterways Experiment Station (WES) under the sponsorship of the U. S. Army Arctic Test Center (USAATC). The funds employed for this study were allocated to WES under USAATC Order No. 5016-1, dated 25 January 1965.

This report was written by Mr. J. H. Shamburger, Dr. C. R. Kolb, and Mr. H. K. Woods. The plates were prepared by Mr. Woods. Field work was accomplished by Messrs. Woods and D. E. Andrews, Geology Branch, during the period 12 August to 1 September 1965. All phases of the study were under the direct supervision of Dr. Kolb, Chief, Geology Branch, and Mr. Shamburger, Chief, Military Projects Section, Geology Branch, and the general supervision of Messrs. W. J. Turnbull and A. A. Maxwell, Chief and Assistant Chief, respectively, of the Soils Division.

Special thanks are due Col. C. McFalls, Jr., Commanding Officer, USAATC, and Col. W. F. Johnston, Chief, and Dr. H. H. Rasche, Chief Scientist, of the Research and Development Office, USAATC, for their assistance in the planning stages and their excellent liaison during the field work. Special thanks are also due Lt. Col. L. M. Eek, Jr., Chief, Armor and Combat Vehicle Division, USAATC, and personnel within his division for their outstanding cooperation and support during the field operations. The desired aerial photographic coverage was obtained through the efforts of Capt. Quintarelli, G-2 Section, U. S. Army Alaska.

Director of the WES during the conduct of this study and preparation of this report was Col. John R. Oswalt, Jr., CE. Technical Director was Mr. J. B. Tiffany.

CONTENTS

SUMMARY

A method for classifying and mapping terrain features pertinent to off-road mobility in selected temperate, tropical, and desert areas was applied to subarctic terrain in this study. The area involved borders the Automotive Test Course of the U. S. Army Arctic Test Center at Fort Greely, Alaska, and is roughly 2000 ft wide and 15 miles long. Conditions mapped were those prevalent during the late summer. The classification and mapping method proved satisfactory with only minor modifications. Terrain factors unique to cold regions which require additional research before they can be properly classified and mapped for mobility test purposes include depth of thaw, snow depth, snow type, ice thickness, and stream turbidity.

TERRAIN EVALUATION OF A PORTION OF THE FORT GREELY AUTOMOTIVE TEST COURSE

PART I: INTRODUCTION

Background

1. The U. S. Army Arctic Test Center (USAATC) at Fort Greely, Alaska, utilizes a 33-mile tank trail for various types of automotive tests. These tests are necessary to determine the performance of vehicles and related equipment and to obtain data beneficial in designing future equipment that will operate more efficiently in the arctic and subarctic environment. Endurance testing during low and extremely low temperatures is being stressed at the present time. Off-trail mobility testing is also conducted under both winter and summer conditions. Environmental factors, such as temperature, snow depth, slope, and water depths, are recorded during mobility tests, particularly at those points where immobilization occurs. However, it is realized that such measurements only partially describe the host of environmental factors which affect cross-country mobility and other mobility tests are needed. These mobility tests should be concerned with a much wider variety of environmental conditions in cold regions, for example the effect of: various types, trunk diameters, and trunk spacings of subarctic forests; various configurations of the bed and banks of arctic streams; various types as well as depths of snow; and different types of muskeg. These are a few of the terrain factors which should be considered singly and in combination with such factors as slope, microrelief, and dissection--and these, in turn, with various climatic variables for comprehensive mobility testing in cold regions environments. In order to determine the effects of various terrain characteristics, two requirements must be met: (a) these environmental conditions must be measured in quantitative terms, and (b) mobility tests must be performed to determine the impact of these conditions on vehicles traversing specific types of terrain.

2. As a preliminary step in meeting the first requirement which was aimed at improving the comprehensiveness and sophistication of environmental

description used in reporting and assessing mobility tests, USAATC sponsored the study reported herein, which was conducted by personnel of the U. S. Army Engineer Waterways Experiment Station (WES). WES personnel have had considerable experience in environmental studies involving description and quantification of terrain features and in the application of these studies to mobility problems. This experience has involved temperate and desert areas, and in more recent years, detailed and comprehensive studies in a tropic environment. Limited mobility studies of specific vehicles have been made by WES groups in Alaska, Greenland, and Canada. One environmental study made by the Military Geology Branch (U. S. Geological Survey) under the direction of WES was made in 1955 in the Fort Greely area. The report of that study[1] was used to advantage in the study reported herein.

Purpose and Scope

3. The objectives of this study were (a) to utilize techniques developed at WES to quantitatively map terrain features along selected portions of the Fort Greely Automotive Test Course, and (b) to determine the suitability of these techniques in the subarctic environment or to modify them where necessary. Hopefully, a future study will permit mapping of all the area adjoining the Automotive Test Course utilizing modifications to the mapping technique suggested by the present study. Objectives of this future study would include (a) mapping of winter terrain conditions, (b) illustrations of the use of summer and winter terrain maps in conducting mobility tests, and (c) recommendations of standard tests, reporting procedures, and instrumentation for assessing the off-road mobility of vehicles in a subarctic environment.

PART II: THE TERRAIN DESCRIPTIVE SYSTEM

4. The objective of the terrain descriptive system is to assist in evaluating the mobility of vehicles and thereby improve the ability of the Army to operate in an arctic and subarctic environment. Realization of this objective involves description, evaluation, and application. The terrain analyst is responsible for description, the test officer for evaluation, and the vehicle designer for applying the results toward modifying existing vehicles or designing new ones.

5. Of primary concern in this study were the duties of the terrain analyst who must describe terrain in terms such that the test officer can use the descriptors directly as inputs in his assessment of vehicle performance. As mentioned in the Introduction, WES has had many years of experience in the field of quantitative terrain description and its application to mobility. However, this study is the first attempt to apply the WES descriptive system to the subarctic.

6. It was anticipated that, as in the case of the desert and tropic regions, the arctic would require significant revisions to the basic system now in use. Consequently, efforts for the present study were directed toward determining which portions of the present system are applicable to the arctic and subarctic, which could be applied after modification, and which must be replaced or supplemented by new and more pertinent descriptors. Where the present descriptive system appeared inadequate, i. e. where descriptors unique to the subarctic environment were needed, field data were collected but were not systematized. It was recognized that there were a few pertinent terrain descriptors, such as depth and type of snow cover, freeze-thaw characteristics of the ground, etc., which can only be fitted into the terrain descriptive system after comprehensive field surveys made in conjunction with mobility tests.

7. The description and classification system used in this study was adapted from a system developed for the Army Materiel Command (AMC) as part of the Military Evaluation of Geographic Areas (MEGA) project. Even though the MEGA classification had not been applied to an arctic or subarctic environment, the rationale behind the system was considered sound

and it was believed that with minor modification the system would work effectively for the present study.

8. The MEGA system can be stratified into groups of terrain factors, each group of which tends to produce a characteristic type of effect on vehicle mobility. For example, the effects produced by the shape of topographic surface are in general different in kind from those produced by bodies of water. While there are many exceptions to this, nevertheless the suggestion remains that a division of the environment into families of related attributes is both reasonable and fruitful. This grouping is referred to as the factor-family concept. The concept is described in paragraphs to follow. Before presenting this concept certain terms are defined.

Definition of Terms

9. Certain words or terms that are frequently used in this report are defined below; others will be defined as they appear.

Cross-country movement. Off-road and off-trail movement by military vehicles.

Trafficability. The ability of a soil to support the passage of ground-contact vehicles.

Mobility. The ability of a vehicle to move across terrain.

Terrain factor. A specific attribute of the terrain (which can be defined either quantitatively or in semiquantitative or qualitative fashion) that forms an exclusive category. Terrain factors include all attributes relating to soils, rocks, surface water, geometric configuration of the surface, and vegetation.

Factor class. A specific category within a terrain factor which has been defined as having a specific range of size, configuration, strength, or other property, e.g. the range of slope 0 to 1/2 deg is a factor class within the terrain factor defined as slope.

Terrain effect. A measurable or otherwise definable effect on the performance of a vehicle imposed by a specific terrain factor class or by a combination of such classes.

Terrain factor family. Two or more terrain factors used in

combination to adequately describe a specific attribute of the environment. For example, slope, spacing, step height, and terrain approach angle are the terrain factors included in the surface geometry factor family which adequately describe the surface geometry of an area.

Terrain type. A region throughout which a specific assemblage of factor values occurs.

Vertical obstacle. An obstacle that forces the vehicle to move in a vertical plane, i.e. up and down. Features such as ditches, dikes, deadfalls, etc., are types of vertical obstacles.

Lateral obstacle. An obstacle that can be avoided or circumvented but which forces the vehicle to move from side to side, i.e. laterally, in order to negotiate the area. Lateral obstacles include such features as stout trees, large bolders, stumps, etc.

Longitudinal obstacles. Obstacles that cannot be avoided, but which force neither vertical nor lateral motion to any marked degree. Their effect on vehicles is a reduction of speed; that is, the effect is primarily as a force parallel to the forward motion of the machine (i.e. to its longitudinal axis). These obstacles are most commonly vegetative types that a vehicle can force a path through by overrriding or pushing aside the plants.

Classification System

10. The purpose of terrain analysis is to apply quantitative or semiquantitative methods of describing terrain in such fashion that the effects of natural environments on an operation, activity, or item of materiel can be predicted. A prediction of effect implies that the causative agents can be identified. However, since nature imposes its attributes simultaneously, the effects which may be imposed on a specific operation are almost always responses to several causes acting in concert. For example, a vehicle traversing a hill may be affected by the soil consistency, the slope angle, the degree of surface roughness, and the vegetation. On the other hand, different and varying combinations of terrain factors may produce the same total effect on the vehicle's progress. Thus, a combination of vegetation and soft soil may produce the same impedance to vehicle

movement as does slope alone. When it is considered that terrain occurs in an almost infinite combination of conditions, it is clear that any system which attempts to describe all conditions simultaneously becomes unmanageably complex. The only reasonable solution appears to be the division of the total array of terrain characteristics into groups of factors which tend to act in a common manner on any specific operation. Accordingly, four such groupings, or factor families, have been established by WES to describe the attributes of the landscape. These are surface conditions, surface geometry, vegetation, and hydrologic geometry.

11. Before presenting the factors and their class ranges, a general idea of how these factor value classes were selected is in order. A two-fold purpose was involved in the selection process. First, the class intervals chosen had to be realistic in terms of vehicle response; that is, the class had to describe conditions to which vehicles were known to respond. Equally important, the classes had to be recognizable, or at least interpretable, from airphotos, because the only practical method of extrapolating data to large unsampled areas is by means of photointerpretation. Little could be accomplished by insisting on a class interval if that class could not be mapped. As a result, the class units eventually chosen are in every case compromises between the desires of mobility predictors and the realities of meeting practical mapping criteria. The rationale for selecting the various class ranges of each factor is presented in detail in a WES technical report scheduled for publication in August 1966.[2]

Surface conditions

12. This factor family is concerned with the composition and physical properties of the materials composing the surface to be traversed. Rock type, the relative percentage of soil and rock, soil type, soil moisture, soil strength, cryogenic state, and snow cover are major factors considered in this family.

13. After observation and some experimentation in the field it was determined that only the factors of soil type and cryogenic state (depth of thaw) should be considered in the present study. Rock does not occur along the test course at depths sufficiently shallow to affect mobility. Snow cover and related phenomena were not pertinent at the time of year

this study was made. Soil moisture, on the other hand, and its effect on soil strength are considered to be most important in mobility studies. A rapid means of measuring soil strength in the field is the cone penetrometer, a calibrated rod with a cone-shaped tip which measures soil strength in terms of the force required for the rod to be pushed into the upper layers of soil. Since these measurements have a direct application to soil trafficability, the original plan was to classify surface composition in terms of rating cone index (RCI). This permits determination of soil mass strength which is defined as the property (or properties) of soils that permits them to sustain normally applied loads. Unfortunately, the gravelly and rocky soil characteristic of the test course area is ill-suited for use of the cone penetrometer. Rocks in this soil tend to hinder penetration of or to deflect the rod, resulting in erroneous readings. Consequently, cone penetrometer readings obtained were insufficient for use in the mapping program.

14. In addition to the mechanical difficulties associated with determining rating cone index in the study area, it became apparent that high variations in soil moisture and, consequently, in soil strength could be expected because of frequent rainfall, drying winds of high velocity, and thaw conditions. These would have markedly affected rating cone indexes in the same area within short intervals of time. What is needed are long-range studies (such as have been made in temperate areas of the United States[3]) which correlate changes in soil moisture with precipitation, wind, and humidity. Such studies would permit reasonably accurate estimates of changes in strength of the upper soil layers based on the soil type involved and meteorologic records. Thus the constant factor is the soil type and this is what has been mapped in the present study.

15. Classification of soils into types can be based on texture, mineralogy, structure, genetic attributes, and other properties considered singly or in concert. In studies involving mobility, the Unified Soil Classification System (USCS)[4], which considers texture, plasticity, and grading of the coarse soil constituents, has been found particularly useful. In addition to soil type, the depth of thaw was measured and has been mapped. Although this factor varies as the year progresses, it varies gradually.

At the time the field work reported in this study was done (the last three weeks in August), depth of thaw had probably reached or was closely approaching its annual maximum. Studies should be made of the effect of meteorologic, soils, and topographic conditions on depth of thaw. In this way various ranges of thaw depth should be predictable as summer progresses.

16. Summarizing, surface condition factors chosen for mapping in the test course area were soil type and depth of thaw. Mapping units of each of these factors are tabulated below.

Soil Type	Depth of Thaw
1. Silt (ML)	1. 0 to 24 in.
2. Muskeg	2. 24 to 42 in.
3. Organic silt (OL)	3. Greater than 42 in.
4. Sandy silt (SM)	
5. Poorly graded sand (SP)	
6. Poorly graded sand and gravel (GP)	

Surface geometry

17. This factor family is concerned with the configuration of the surface of the earth. Such things as slopes, ravines, embankments, ditches, and plowed fields are typical surface configurations which produce profound effects on the mobility of vehicles. It must be emphasized that consideration of this factor family is governed only by actual physical shape and arrangement; it is not concerned with what caused the feature or whether it is man-made or of natural origin. In short, this factor family is simply the geometrical configuration of a three-dimensional surface. It is arbitrarily divided into two categories: macrogeometry and microgeometry.

18. Surface macrogeometry is that portion of the geometric configuration that can be adequately defined for military purposes by a contour interval of 5 ft. In general, it incorporates the gross configuration of the surface: hills, valleys, ridges, etc.

19. Surface microgeometry encompasses all configurations of the surface that cannot be adequately defined for military purposes by a contour interval of 5 ft. It includes the small-scale surface irregularities, such as boulder fields, termite mounds, stream banks, frozen tussocks, etc.

20. Intensive studies[5] have shown that the surface geometry parameters or factors that affect vehicle movement over a surface are slope, spacing of vertical obstacles, terrain approach angle, and obstacle step height. These factors, except for spacing of vertical obstacles, were classified and mapped along the test course. Vertical obstacles occurred so infrequently in the study area that it was considered more appropriate to show their actual positions on the maps. Definition of these factors and the factor class values utilized in mapping are presented in fig. 1.

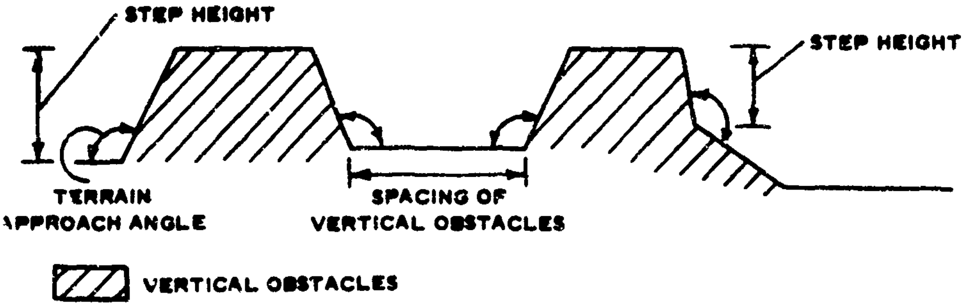
Vegetation

21. This factor family includes two related assemblages of properties: vegetation structure and screening characteristics. Each of these properties deals with particular characteristics of vegetation as a whole. In this context, vegetation includes all plants growing on the surface of the earth, on other plants, or in or on water. That is, it incorporates both terrestrial and aquatic vegetation structures.

22. Vegetation structure comprises the relatively gross physical attributes of plant growth. It is the geometry of the vegetation as a whole, and incorporates those physical properties known or assumed to produce direct effects on military activities; the factors include stem size and spacing, height, branching characteristics, etc.

23. Screening characteristics of vegetation is an "artificial" property of vegetation in the sense that it is an arbitrary measure of an effect of the vegetation structure on a specific activity rather than a measure of a direct physical attribute of the plants themselves. The property measured is the effect of plant growth of varying density on visibility along selected lines of sight. Consideration of visibility, in the total sense, involves a variety of phenomena not all related to vegetation per se. It is evidently a function of the number and size of obstructions, the amount and quality of available light, the physiological variations in the observer (e.g. color blindness or myopia), and the psychological reactions of the observer as controlled by his experience and familiarity with the specific situation.

24. Vehicle tests conducted by WES[6] have indicated that the three vegetation factors most critical to cross-country mobility are stem



Definitions:

Vertical obstacle. A surface feature which forces a vehicle to move in a vertical plane (i.e. up and down) while surmounting it.

Terrain approach angle. The most critical angle (the smallest) formed by the slopes bounding a vertical obstacle that a vehicle must sense in surmounting the obstacle.

Spacing of vertical obstacles. The average distance between their bases.

Step height. The vertical distance from terrain approach angle to the top of a vertical obstacle.

SURFACE GEOMETRY CLASSES

Slope		Approach Angle		Step Height	
Class	Range, deg	Class	Range, deg	Class	Range, in.
1	0-3	1	<100	1	0-12
2	3-6	2	100-125	2	12-24
3	6-12	3	125-150	3	24-36
4	12-26.5	4	150-165	4	36-48
5	>26.5	5	165-180	5	>48
		6	180-200		
		7	200-210		
		8	210->220		

Fig. 1. Surface geometry factors

diameter, stem spacing, and visibility. Of these three factors, spacing and diameter were mapped. Visibility or screening was not mapped during this study because a suitable classification system is not presently available.

25. The classification system used to map stem diameter and spacing is shown below. Spacing of stems ≥ 1, 3, 6, and 10 in. in diameter was mapped in discrete units varying from 0 to > 30 ft apart. The stem diameters include varying degrees of resistance to movement. The 1-in. stem offers little or no resistance and is considered override, a longitudinal obstacle that impedes but does not immobilize, whereas the 10-in. stem cannot be overridden by most vehicles and is considered a lateral obstacle which requires the vehicle to maneuver around it. The spacing values coupled with stem diameter that cannot be overridden can be equated with varying degrees of maneuverability. The lower range (0 to 5 ft) prohibits movement in an area, and the > 30-ft spacing allows almost complete freedom of movement.

Spacing of Stems, ft	Diameter of Stems, in.
1. 0-5	
2. 5-10	≥ 1
3. 10-20	≥ 3
4. 20-30	≥ 6
5. > 30	≥ 10
6. Absent	

26. Although basically simple, the mapping classes of vegetation spacing and stem diameter require some study to be understood. Since stems of various diameters can be and often are indiscriminately mixed together, it has been found expedient to use the mapping classes shown on page 12. Each spacing unit may be combined with any of the four diameter units and the vegetation categorized by a combination of four such designations. In the example shown on page 12, the area mapped is characterized by stems ≥ 1 in. in diameter spaced from 0 to 5 ft apart, map class 1; stems ≥ 3 in. spaced 10 to 20 ft apart, map class 3; stems ≥ 6 in. spaced 20 to 30 ft apart, map class 4; and no stem ≥ 10 in. in diameter, map class 6.

Vegetation			
Stems Equal to or Greater Than (in in.)			
1	3	6	10
1*	3*	4*	6*

* Map class.

Hydrologic geometry

27. This factor family is concerned with the shape, size, and distribution of water bodies of all kinds. Here, temporal variance is a matter of very great concern, since these shapes, sizes, and distributions vary with time. There are also dynamic considerations such as current velocity. For example, water splash created by high current velocities may drown out an engine and immobilize a vehicle just as effectively as excessive water depth, or approach angles beyond the capability of the vehicle to negotiate.

28. For the purpose of the WES classification system, a hydrologic geometry feature is defined as a water body containing more than 3 ft of water; otherwise, it is a surface geometry feature. By this definition a water body can be either a surface or a hydrologic geometry feature depending upon the amount of annual fluctuation of water. Jarvis Creek is a prime example of the above statement. However, this study considered only the water depth during field work and thus Jarvis Creek was considered a surface geometry feature and was mapped accordingly.

29. The classification system used in this study identifies two hydrologic geometry characteristics: configuration of the banks (or contact approach angle) and water depth. Contact approach angle is the angle which the surface of the water body makes with the bank. It corresponds to the slope the vehicle must negotiate when exiting from the water. Thus an essentially flat slope of exit would approach 180 deg and an essentially vertical one 90 deg. The class ranges of the hydrologic geometry factors mapped in the study area are tabulated on the following page. These classes were established on the basis of field data collected in Thailand, and only limited vehicle test data were available to determine their validity.

Contact Approach Angle, deg	Water Depth, ft
1. < 145	1. 3-6
2. 145-155	2. 6-10
3. 155-165	
4. 165-180	

30. Water velocity within a water body is also important from a mobility standpoint; however, a suitable system for classifying this factor is not presently available and this factor was not mapped. Thickness of ice on water bodies must also be considered in future arctic terrain studies.

PART III: DATA COLLECTION PROGRAM

Literature Survey

31. A literature survey was initiated to locate and review all available data, maps, and aerial photographs of the region around Fort Greely. It revealed only a limited number of useful publications within the area of interest. The best source of published data was the report prepared by the U. S. Geological Survey (USGS)[1] under contract to WES and even this could be used only indirectly in factor mapping and area selection. This report is recommended to those readers who are interested in an excellent description of the geography and general physiography of the study area. Because of its existence, it was not considered necessary in the present study to summarize the geographic-geologic setting of Fort Greely and its environs.

32. The contour interval of existing topographic maps was too large to materially aid in designating areas for study, and the available aerial photographs were not suitable for compiling strip topographic maps with the 5-ft contours needed for the study. The need for recent, large-scale airphotos was considered sufficiently important to request that coverage be flown by the 19th Aviation Battalion, U. S. Army Alaska (USARAL), at Anchorage. This battalion flew complete coverage of the northern oval of the Automotive Test Course, and after areas for detailed study had been selected, additional coverage was flown of selected segments in the southern part of this oval. Strip topographic maps were compiled of these segments (plates 11 through 14).

Areas Selected for Study

33. Selection of the areas to be studied was based on the following criteria: (a) interest to the Armor and Combat Vehicle Test Division (ACVTD) of USAATC from the standpoint of their testing program, and (b) occurrence of as many different terrain conditions as possible. The ACVTD was furnished an aerial mosaic of the test course and was asked to

specify areas of interest. Personnel within the division selected 14 segments along the test course where they had experienced difficulty at one time or another during vehicle testing, and stereoscopic examination of photographs suggested that the segments selected contained a reasonably wide variety of terrain conditions. The total length of the segments selected was approximatey 14 miles, an almost continuous portion in the southern part of the test course and isolated segments east of Jarvis Creek (see fig. 2). Mapping was done along strips 1000 ft wide on either side of the selected segments in most instances. Where the test course closely approached the reservation boundary, a 2000-ft-wide strip was mapped on only one side of the course, so that no part of the mapped area would lie outside the reservation borders.

Field Data Collection

34. The field data collection program began on 12 August 1965 and ended on 1 September 1965. During this time 96 sites were sampled and ground photographs were taken (see photographs 1 through 15). By "site" is meant an area within which detailed field measurements were made. Measured traverses in such areas ranged from 30 to 700 yd in length. Areal measurements ranged in size from 100 to 3000 sq yd.

35. The field parties consisted of two geologists from WES and three enlisted men from ACVTD. These personnel were divided into two teams. One team was responsible for collecting data on the surface geometry and hydrologic geometry, and the other team sampled the vegetation and soils.

Site Selection and Field Sampling

36. Sampling sites were selected by studying airphotos and ground reconnaissance. The airphotos were examined to identify variations in tone and texture indicative of different terrain types. After the sites had been selected from airphotos a ground reconnaissance was made to verify the photointerpretation so that any significant environmental

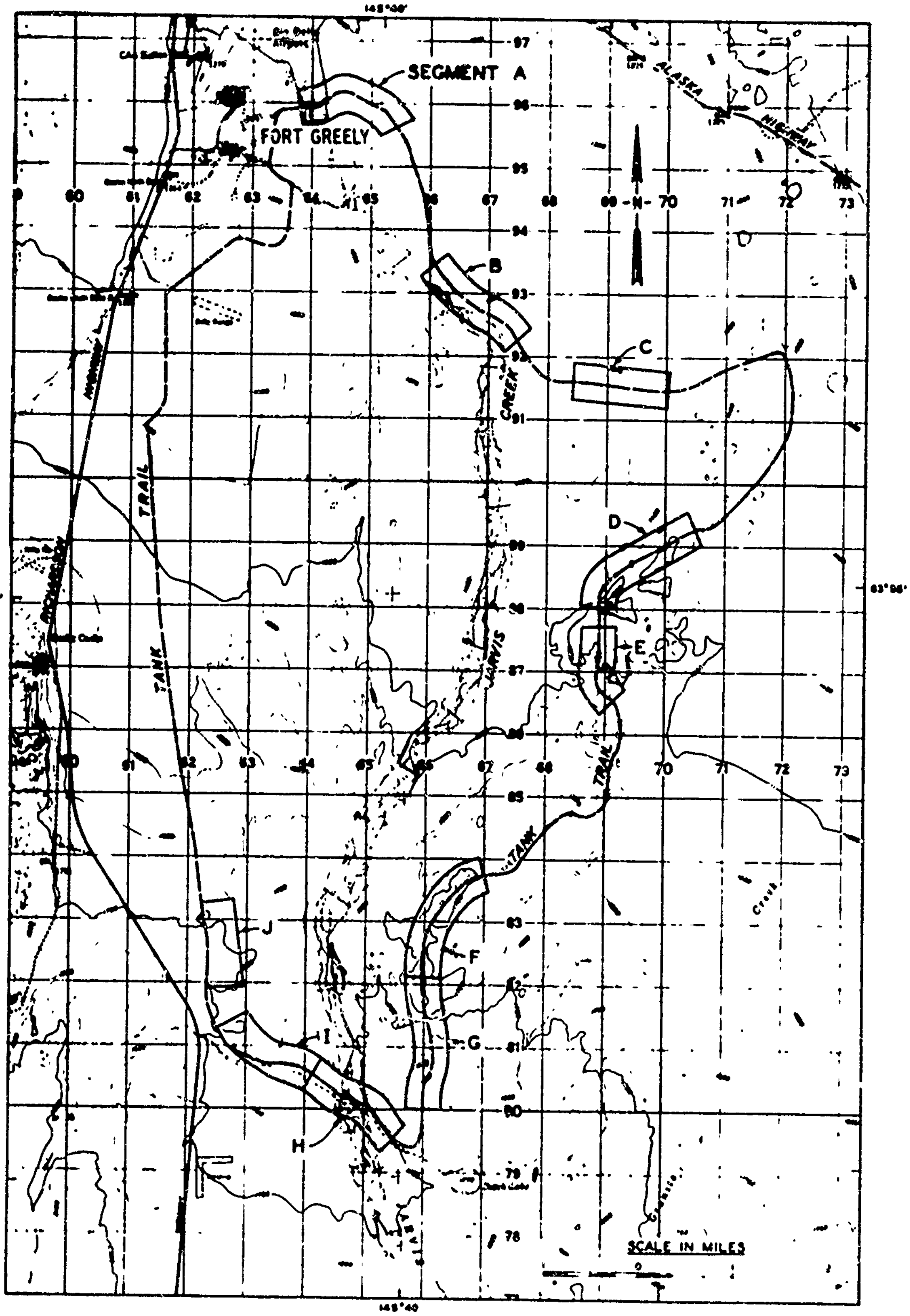


Fig. 2. Index map locating position of segments

variations that had not been previously recognized could be detected.

37. The sites were then assigned to the teams; the surface geometry sampling team was given those for which the principal reason for selection was surface configuration; the vegetation team was given those selected as illustrative of distinctive vegetation patterns, etc. Sites containing a mixture of pertinent factor families were visited by whatever teams were necessary to make an appropriate evaluation. The methods employed to collect data for each of the terrain factors are discussed in the following paragraphs.

Soils

38. Soils data were collected at the previously selected sites through a systematic sampling process. Three types of data were collected: (a) soil classification data to a depth of 18 in., (b) trafficability data in the form of cone index (where reliable measurements could be taken), and (c) depth of thaw if within 42 in. of the surface. These data were recorded on a form illustrated in fig. 3.

39. Soil samples were obtained with a Hvorslev sampler, which was designed for sampling comparatively soft soil. This sampler extracts a core approximately [illegible] in. in diameter and 6 in. long. The lower limit of usability of this sampler is reached when the soil becomes soft enough to flow out of the cylinder. The upper limit is determined by the operator's ability to force the cylinder into the soil with a smooth, continuous motion. The type and thickness of each distinctive layer at each site were recorded. Where the presence of rock fragments or gravel prohibited the use of the Hvorslev sampler, an 18-in. pit was dug to secure soil data for classification. Five sets of cone index (CI) readings were taken with a cone penetrometer in the vicinity of each soil sample. Readings were taken at the surface, 3-, 6-, 12-, and 18-in. depths. The 18-in. depth includes the critical layer, which is defined as that layer of soil beneath the surface having sufficient strength to support a specific vehicle. However, the 6- to 12-in. depth is considered the critical layer for most vehicles. Remolding index (RI) was determined where the soils permitted. The depth of thaw (if less than 42 in.) was determined by probing with a metal rod.

SOIL DATA

Location: Fort Greely   Site Number: S - 2   Date: 18 Aug 1965

Area Description: Area is relatively flat adjacent to the drop zone. Vegetation is predominantly spruce with pure stands of poplar. Ground cover consists of a spongy moss with small woody stems.

Field Classification: ML

Sample Description:

0 - 2 in.	mosses, lichens, and decayed twigs
2 - 8 in.	silt, light brown, micaceous
8 - 9.5 in.	silt, light gray, traces of organic matter
9.5 - 18 in.	silt, dark brown, no trace of organic material, slightly moist

Depth to Permafrost: > 42 in.

TRAFFICABILITY DATA

	Cone Index					Remolding Index
Station	SFC	3	6	12	18	6 - 12 in.
1	20	55	65	100	120	6 in. - 50
	22	50	70	70	115	9 in. - 90
	10	15	50	110	120	12 in. - 125
	10	25	80	120	115	Total 265
	25	60	100	100	120	
	40	60	70	120	120	Remolding index 0.9
Total	127	265	435	620	710	
Avg	21.1	44.1	72.5	103.0	118.3	

Avg 0-6 in. 45.9   6-12 in. 87.9   12-18 in. 110.8

Fig. 3. Form on which soils data were recorded

40. Where possible, data collected in muskeg included samples, cone penetrometer readings, depth-of-thaw probings, and remolding indexes. Samples for classification were difficult to obtain from the wet fibrous meskeg, and attempts to obtain remolding indexes often resulted in compressing the organic material after five blows with the hammer.

Surface geometry

41. Field data collected for surface geometry factors were restricted to profiles. Distance between the profiles varied depending upon the feature that was being sampled. However, sufficient profiles were taken so that the feature could be reconstructed in the form of a profile and the desired information obtained for mapping. These profiles were run with a site marker transit and stadia board perpendicular to the slope of the prominent features within a segment. The data were recorded as shown in fig. 4. Features exhibiting a constant slope were measured with a Haga altimeter, a hand-operated instrument which utilizes the line-of-sight between the operator's eye level and the corresponding height on an object up- or down-slope. The line-of-sight is measured by a gravity-controlled, damped, pivoted pointer on a calibrated scale measuring degrees of inclination in percent. A 100-ft tape was used to measure horizontal distances in place of the stadia board where short traverses were made across such features as muskeg depressions, erosional features, etc.

Vegetation

42. The vegetation was sampled using the "structural cell concept." In brief, a structural cell may be defined as "the minimum area which includes a statistically significant sample of all the important variations, in terms of the selected parameters, present in a given plant assemblage."[7]

43. In theory, there exists a separate structural cell for every measurable feature of a given plant assemblage. Thus, a structural cell may be generated on any one or any combination of parameters. For example, the major interest in this study was the distribution of tree stems of specific diameters. Therefore, specific stem diameter classes were

WES FORM NO. 1371
FEBRUARY 1964

SURFACE GEOMETRY DATA FORM

DESCRIPTION: Profile, dry drainageway SITE NO.: 6

LOCATION: Location 3, 400 ft west of tank trail

MEASURED BY: Andrews & SP/4 Kucia DATE: 19 Aug 1965

UNIT MEASURE: Feet SHEET: 1 OF 1

TRAVERSE NUMBER	TRAVERSE OFFSET	STATION NUMBER	VERTICAL OFFSET	TRAVERSE NUMBER	TRAVERSE OFFSET	STATION NUMBER	VERTICAL OFFSET
1	0	0.0	4.5			62.0	9.4
		3.0	4.7			66.0	8.5
		5.0	6.0			68.0	9.1
		6.0	7.0			72.0	8.7
		9.0	7.1			74.0	7.6
		11.0	8.0			76.0	7.9
		12.0	8.2			77.0	8.1
		13.0	8.3			78.0	8.0
		15.0	8.5			80.0	7.2
		16.0	8.8			82.0	6.1
		17.0	9.6			83.0	5.4
		18.0	9.7			84.0	2.9
		19.0	9.4			88.0	2.8
		21.0	9.8			93.0	2.8
		23.0	10.5			96.0	3.2
		28.0	10.4			98.0	2.9
		33.0	10.1				
		39.0	10.6				
		49.0	10.5				
		53.0	9.9				
		60.0	10.3				

Fig. 4. Form on which surface geometry data were recorded

chosen as basis for the structural cell.

44. The parameter chosen to generate the structural cell is called the "cell determinate factor" or the "determinate factor." Thus in this report the determinate factor was a specified range of stem diameters. In general, each vegetation sample which is described should be large enough to encompass most of the structural variations existing in the stand as a whole. It has been determined that most vegetation structures are adequately described when the sample is a circular area incorporating 20 members of the determinate population.

45. The sampling procedure used can be briefly described as follows. A cell center is selected at any point within a vegetation assemblage and a plane table is set up over this center point. From the center point the distance to the closest stem (tree) is measured. The position of the stem is plotted to scale on the plane table sheet according to distance and orientation from the center point of the sample. This stem is identified as stem number 1 and all data pertinent to this stem are recorded under the appropriate column on a vegetative structural data form (see fig. 5). This procedure is repeated, moving always in a circular direction around the center point to insure proper sampling of each stem. The next closest stem is measured and recorded in the same manner as was stem number 1. This process is continued until stems 1 in. in diameter have been recorded and plotted. To avoid confusion, it is advisable to spray a spot of paint on each stem as the data are recorded. The cell diameter that encompasses 20 stems can be measured on the plane table sheet. The method used to determine the average spacing of stems $\geq$ 1 in. is discussed in the data reduction section.

46. To determine the spacing of the next diameter class, stems $\geq$ 3 in., the above procedure is repeated using the same cell center and keeping in mind the diameter class being sampled. It should be pointed out that some stems in this class may have been recorded in the previous class. All the stems that fit the diameter class being sampled are utilized, and only those stems that are required to include 20 stems are added. The sampling procedure is repeated for the remaining two stem diameters ($\geq$ 6 and $\geq$ 10 in.).

VEGETATION STRUCTURE

LOCATION: *Ft. Greely* STATE: *Alaska* CELL NO.: *4*

DATE: *16 Aug 1965* SAMPLED BY: *Woods & PFC French*

Cell Diameter (Feet)	Plant Number	Determinant	Height: Measured (Feet)	Height: Class	Crown: Shape	Crown Diameter: Measured (Inches)	Crown Diameter: Class	Stem: Distance from Plot Center (Feet)	Stem: Azimuth	Stem: Habit	Stem Diameter: Measured (Inches)	Stem Diameter: Class	Stem: Hardness	Stem: Succulence	Branching Height: Measured (Inches)	Branching Height: Class	Branching: Type	Remarks
18 19 20 21	22 23	24	25 26 27 28	29	30	31 32 33 34	35	36 37 38 39	40 41 42	43	44 45 46	47	48	49	50 51 52	53	54	
64	26	–	20	–	–	26	–	19.0	– – –	–	34	–	–	–	2	–	–	Black Spruce
64	27	–	22	–	–	30	–	30.0	– – –	–	40	–	–	–	3	–	–	" "
64	28	–	14	–	–	24	–	27.0	– – –	–	30	–	–	–	3	–	–	" "
64	29	–	12	–	–	24	–	32.0	– – –	–	30	–	–	–	2	–	–	" "
64	30	–	11	–	–	42	–	24.0	– – –	–	30	–	–	–	2	–	–	" "
64	31	–	18	–	–	28	–	19.0	– – –	–	33	–	–	–	2	–	–	" "
64	32	–	13	–	–	25	–	21.0	– – –	–	30	–	–	–	2	–	–	" "
64	33	–	13	–	–	36	–	32.0	– – –	–	30	–	–	–	3	–	–	" "
64	34	–	12	–	–	24	–	31.0	– – –	–	30	–	–	–	2	–	–	" "
64	35	–	10	–	–	24	–	32.0	– – –	–	31	–	–	–	3	–	–	Black Spruce

Remarks: *7" Stems were observed outside the cell - with spacing >30'*

No stems ≥10" were observed

WES FORM NO. 1374
FEBRUARY 1964

Fig. 5. Form on which vegetation data were recorded

Hydrologic geometry

47. As previously mentioned, hydrologic geometry features are by definition water bodies which contain 3 ft or more of water, which restricted the hydrologic geometry features along the test course to lakes. The field sampling consisted of taking a profile of each lake bed perpendicular to the long axis and measuring the depth of water along these profiles. Normally two or more profiles are taken at a hydrologic geometry site but the banks were so uniform that only one profile was required.

48. The following procedure was followed in field sampling. A site marker transit was set up approximately 75 ft from the edge of the water, and a base line was established. Horizontal distances to the water were measured with a 100-ft tape, and after reaching the water, stadia readings were taken. The vertical offsets and depth of water along the profile were taken from a stadia board and recorded (fig. 6). After the water became too deep for wading the rodman continued across the lake in a boat.

Data Reduction

49. The next step was to reduce the field data to a form suitable for use in preparing factor-family maps. Special forms were made to record the reduced data, making it readily accessible during the mapping phase.

50. The classification assigned to the soil sampled from the 6- to 12-in. layer at each site was extrapolated directly from the data form without conversion. Depth-of-thaw probes were recorded as obtained from the field.

51. Surface geometry profiles were plotted from the field data. The profiles were plotted using the same horizontal and vertical scale so that true values could be taken directly from the profile. Values for slope, approach angle, and step height were obtained from the profiles at each sampled site.

52. The vegetation data were reduced to average spacing values

WES FORM NO. 1373
FEBRUARY 1964

HYDROLOGIC GEOMETRY DATA FORM

SITE NO.: 20 DATE: 31 Aug 1965 COUNTRY: Ft. Greely, Alaska

NAME OF WATER BODY: Rawhide -local name

GENERAL LOCATION: East of tank trail, northern part of location

MEASURED BY: Andrews, SP5 Kelly, SP4 Kucia UNIT MEASURE: Feet

● MAXIMUM WATER LEVEL SHEET 1 OF 1

■ WATER LEVEL AT TIME OF SAMPLE

PROFILE NUMBER	PROFILE OFFSET	STATION NUMBER	VERTICAL OFFSET	CONE INDEX				SOIL TYPE 0-6 LAYER	CURRENT VELOCITY	REMARKS
				0	6	12	18			
1	0	0.0	4.7	–	–	–	–	–		
		20.0	5.4	–	–	–	–	–		
		35.0	5.4	–	–	–	–	–		
		40.0	5.4	–	–	–	–	–		
		55.0	4.1	–	–	–	–	–		
		70.0	4.5	–	–	–	–	–		
	■	110.0	6.3						None	
		140.0	7.8						"	
		230.0	9.2						"	
		280.0	11.2						"	
		320.0	13.0						"	
		440.0	13.6						"	
		500.0	*9.0						"	*Depth 9.0'
		590.0	*9.0						"	* " "

Fig. 6. Form on which hydrologic geometry data were recorded

for each of the stem diameter mapping categories ($\geq$1 in., $\geq$3 in., $\geq$6 in., and $\geq$10 in.). The values for stem spacing were calculated using the formula:

$$S = D/\sqrt{N}$$

where S is the spacing in feet, D is the cell diameter in feet, and N is the number of stems. The cell diameter and number of stems for each of the above-mentioned mapping categories were obtained directly from the plane table sheet constructed in the field.

53. The procedure for reducing the hydrologic geometry field data was similar to that used for surface geometry. Profiles were plotted using the same scale for the vertical and horizontal distances, and the contact approach angle, step height, and water depth were measured along the profiles.

PART IV: INTERPRETATION AND MAPPING TECHNIQUES

Photointerpretation Criteria

54. A preliminary step in identifying terrain conditions from airphotos was the categorization of the area into landform and land-use types and by topographic position within the landforms. The specific identification keys applied during the airphoto study are discussed in the following paragraphs according to factor family. All keys were developed with the benefit of the data collected from the field sites. These sites are located and identified in plates 1 through 10.

Soils

55. Delineation of soil types (CL, ML, etc.) was based chiefly on landform type (floodplain, terraces, and knob-and-kettle topography) and topographic position. Tones and textures on the airphotos helped considerably in soil type identification. Contrary to expectations, vegetation patterns proved to be poor indicators of soil type.

56. Distinction of ML and SM soil types from other soil groups was made principally on the basis of their light to medium gray tone on airphotos and smooth to slightly granular texture. These two units were separated from each other principally on the basis of their topographic position. The ML soils occurred topographically lower than the SM soils. The field reconnaissance and sampling aided tremendously in outlining and establishing these keys.

57. Poorly graded sands (SP) and gravels (GP) were usually restricted to stream beds or abandoned channels. The SP types appeared on the photographs as linear patterns of very light tone with a smooth texture. Airphoto patterns of poorly graded gravels (GP) are similar to the SP group except that they exhibit a darker tone. Ground observations were used to the maximum to delineate the GP areas.

58. A light gray fine-textured pattern usually indicated an organic silt (OL) or muskeg. Keys used to distinguish these OL group types from muskeg were: (a) their slightly darker tone because of the pronounced vegetation, and (b) their topographically higher and better drained

positions. Circular or elongate geometric patterns were indicative of muskeg.

Vegetation

59. Pattern identification was an essential part of determining vegetation characteristics because stem diameter and spacing could not be measured directly from the photographs. Basically, there were four vegetation assemblages, identifiable on the airphotos, that were indicators of stem spacing and stem diameter. The assemblages were: (a) homogeneous spruce, (b) homogeneous poplar, (c) mixture of spruce and poplar, and (d) grasslands and muskeg. Keys used to identify these assemblages and the ranges of spacing and stem diameter are discussed in the following paragraphs.

60. Homogeneous stands of spruce appear as dark gray tones with a granular to mottled texture and are generally characterized by stems spaced from 3 to 25 ft with diameters ranging from 1 to 8 in., and a scattered understory; however, along Jarvis Creek the understory becomes dense. Assemblages of poplar trees were delineated on the photographs by their light to medium gray tone and smooth texture. The smoothness of the texture can be attributed to overlapping canopy. The poplar stems usually vary in diameter from 1 to 6 in. and are spaced from 5 to 20 ft apart. Assemblages of mixed spruce and poplar appear on the airphoto as patterns with various tones of gray with a smooth to granular texture. These mixed trees included stems ranging from 1 to 10 in. in diameter which are spaced from 5 to 30 ft apart. The muskeg and grass areas were identified on the basis of their light gray tones and their smooth texture when contrasted with adjacent stands of trees.

61. The knobs within the knob-and-kettle topography east of Jarvis Creek exhibited a distinctive airphoto pattern. The tops of these knobs are usually void of any stems 1 in. in diameter and they result in a pattern similar to grassland. The vegetation along the side slopes is composed of stems ≥ 6 in. in diameter spaced from 5 to 20 ft apart which is interrupted along the base of the knob by fingers of grasses. These slopes have an airphoto pattern of mottled medium to dark gray tone with a rough texture interrupted at the base by a tone and

texture similar to that described for grasslands.

Surface geometry

62. Although slope determinations can be obtained directly from airphotos, it is a tedious and time-consuming operation. Therefore, strip topographic maps with a 5-ft contour interval were compiled under contract with a private concern, and slope was categorized almost exclusively from these maps (plates 11-14).

63. These strip topographic maps were also invaluable in determining the terrain approach angle and step height of the larger features. Where features were lost in the 5-ft contour interval, field measurements were relied upon and extrapolated to the unsampled areas. This extrapolation was done by stereoscopic examination and through association with topographic expression and soil type. Ground reconnaissance also proved invaluable in mapping surface geometry.

Hydrologic geometry

64. Determination of this factor family was relatively direct. The lakes were easily recognized on the airphotos by their elliptical to round shape with a textureless medium dark gray tone. After the lakes were identified, necessary field data were applied for proper classification.

Map Preparation

Factor maps

65. After the photointerpretation keys had been established, the delineation of the various terrain factors was accomplished through stereoscopic examination of aerial photographs. In other words, areas of different soils were outlined and identified according to type; vegetative areas were categorized according to spacing of the specific diameter ranges; and the surface geometry factor family was delineated according to spacing, approach angle, and step height. As previously mentioned, the slope ranges were determined primarily from the strip topographic maps.

66. Prior to actual factor-family map preparation, aerial photo mosaics were prepared at a scale of 1:6,000. The sample sites were

located on the mosaic and the appropriate factor and class range indicated. Stereoscopic examination of the photography permitted these sample points and their respective class ranges to be expanded to contiguous areas. Noncontiguous areas exhibiting characteristics of tone, texture, and regional landforms that were similar to classified areas were mapped accordingly. Noncontiguous areas with different photo patterns from classified areas were defined primarily on the basis of the interpreter's knowledge and experience. This procedure was continued until the factors within the segments had been mapped.

67. After the areas had been mapped on the individual airphotos, the information was transferred to an overlay at the same scale as the aerial mosaic. This resulted in four overlays (surface condition, surface geometry, vegetation, and hydrologic geometry) with the areas on each overlay identified by two to four numbers signifying the mapping class unit. For example, where the numbers "2,2" appeared within an outlined area on the surface condition overlay, the soil type was a muskeg and depth of thaw ranged from 24 to 42 in. Four-digit numbers were used to signify the vegetation spacing class of stems equal to or greater than 1, 3, 6, and 10 in., etc. Areas on the surface geometry overlay were identified by any of three digits which represented class ranges of slope, terrain approach angle, and obstacle step height. The hydrologic geometry features were identified by two digits representing ranges for the contact approach angle and water depth.

Terrain-type maps

68. The method used in this study to portray the total terrain condition was to synthesize the factor-family maps into a single terrain-type map. The procedure is to overlay the surface geometry, surface condition, vegetation, and hydrologic geometry maps in that order. Actually this synthesis is a map-by-map process whereby each different factor-family combination is outlined, identified, and tabulated as each of these maps is combined. After all four maps have been superimposed, the areas outlined have an array of numbers identifying the factor value class combinations of surface geometry, surface condition, vegetation, and hydrologic geometry in that order. To simplify the

identification and cartographic presentation of terrain types, these arrays were tabulated and a number was assigned to each different array (see legend accompanying plates). These numbers were substituted on the final map in the appropriate outlined area, and the maps are presented as plates 1 through 10.

PART V: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

69. A method for classifying and mapping terrain features pertinent to off-road mobility in selected temperate, tropical, and desert areas has been applied, in this study, to subarctic terrain. Although certain modifications to the method will be necessary before it can be used to maximum advantage in the cold environment, such maps offer the only quantitative approach to identifying and cataloging terrain factors which affect individual off-road mobility tests. Moreover, the system has the advantage of describing terrain in similar terms no matter where its effects on mobility are observed and in terms which, hopefully, are of greatest significance to the vehicle designer.

70. It is emphasized that this study has been a minimal effort concerned with a subarctic area roughly 2000 ft wide and 15 miles in length and that conditions recorded were only those prevalent during the time of the study, i.e. late summer. Certain terrain factors unique to the subarctic should be incorporated in the mapping system. However, it is believed that mapping has been sufficiently extensive and successful to begin controlled vehicle tests in the mapped areas. The purposes of these tests are to determine: (a) the utility of and the possible need for modifying the class ranges or the mapping units chosen within each terrain factor, (b) the type of instrumentation needed to record terrain effects, and (c) the best method for reporting vehicle response to the terrain along a given segment of test course. Recommendations for such controlled testing and for supplemental mapping are given below.

Recommendations

Vehicle tests

71. It is recommended that controlled vehicle tests be performed during both winter and summer months within the area that has been mapped bordering the Automotive Test Course. Such controlled field tests

involve the selection of several vehicles which represent a reasonably wide range of mobility characteristics, the choice of analogous test runs for each vehicle, and the instrumentation of the vehicles for automatically recording test results. The studies should include an analysis of the performance data and their comparison with mapped terrain conditions to determine the degrees of effects a given segment of terrain imposed on a given vehicle. This should result in refining the choice of terrain mapping units, establishing practical procedures for conducting arctic off-road vehicle tests, and formulating methods for analyzing and reporting test results.

72. Among the automatic recording devices needed would be those capable of accurate and detailed measurement of fuel flow and consumption, time lapse, distance traveled, and vertical and longitudinal acceleration. Methods for instrumenting test vehicles to collect these data have been researched and the instruments are available. Automatic print-out of data on a multi-channeled oscillograph has proven satisfactory in previous tests.

Terrain mapping

73. The area encompassed in this study is limited. Mapping should be continued at least to the point where terrain conditions along the remaining part of the course are cataloged. These studies should identify seasonal changes, and techniques should be developed to portray these changes on maps. Variations in water depth, turbidity, and ice thickness should be portrayable as the year progresses. Keys should be developed to permit prediction of time-variable factors such as soil moisture and soil strength with meteorologic conditions, soils type, topographic position, and vegetative cover. Studies need to be conducted of classification techniques most useful for depicting snow cover and snow type and its change during the season. Airphoto interpretation techniques for identifying terrain factor range classes in the arctic and subarctic need continuing study and improvement.

74. It is recommended that mapping proceed from (a) its present point, to (b) mapping of all the area immediately bordering the Automotive Test Course, to (c) the entire area encompassed by the test course.

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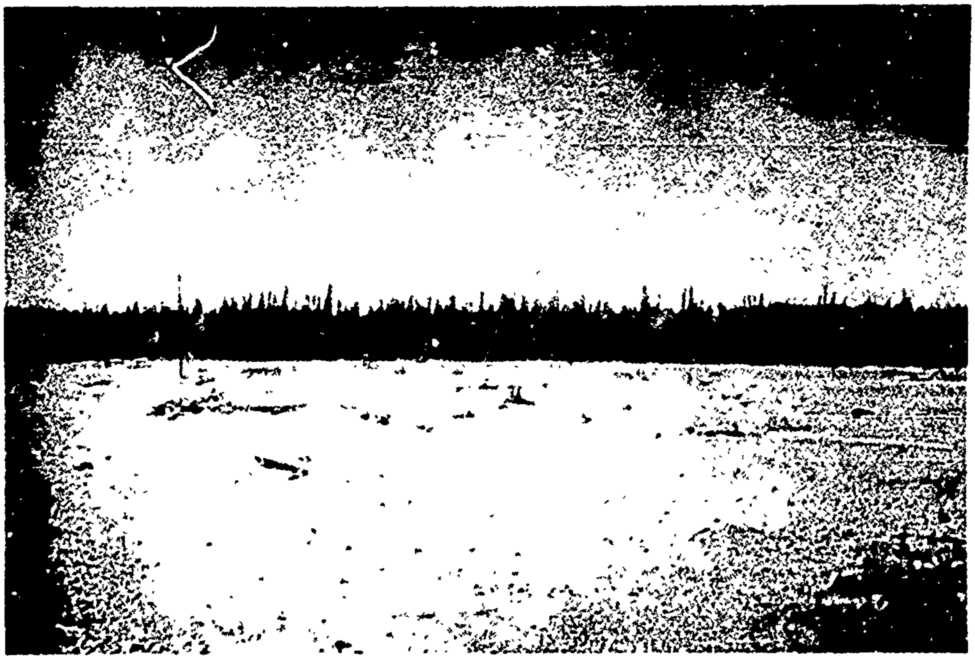
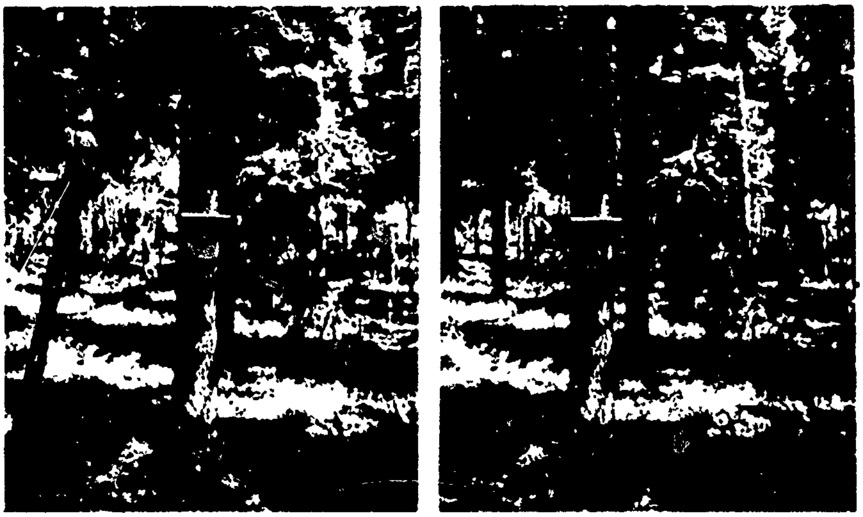
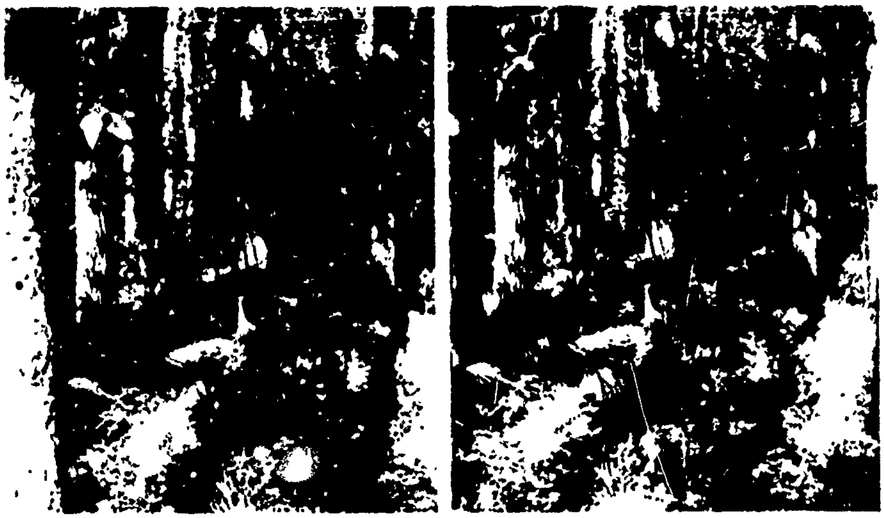


Photograph 1. View across sand and gravel bed of Jarvis Creek in Segment A

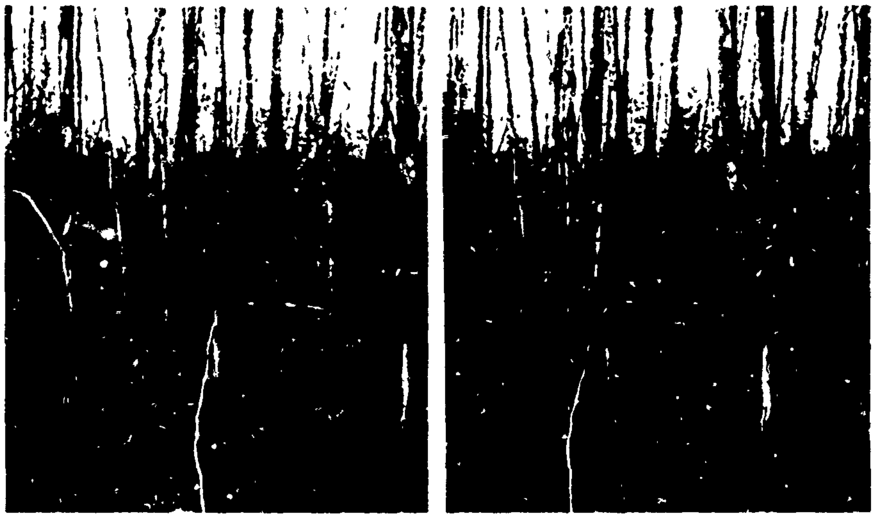


Photograph 2. Stereoscopic pair of black spruce area bordering east bank of Jarvis Creek in Segment A. Tree in center foreground is 11 in. in diameter

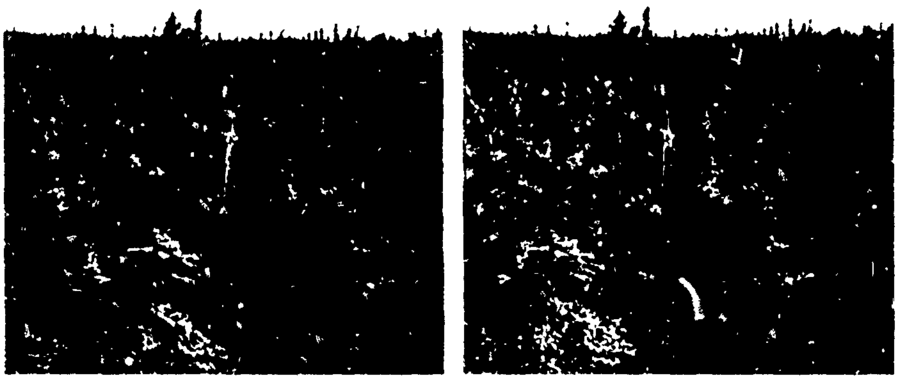
Photograph 3. Relatively flat, grass-covered terrain within drop zone in Segment A



Photograph 4. Stereoscopic pair of poplar trees with understory in Segment B. Stems on the ground are peculiar to this area



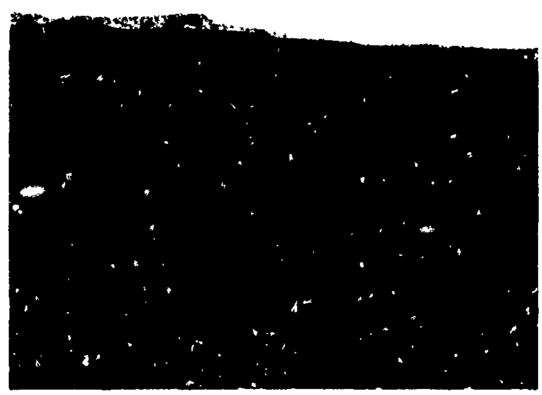
Photograph 5. Stereoscopic pair of standing dead stems in Segment C. This area was a part of the Granite Burn of 1954. New growth can be seen in background



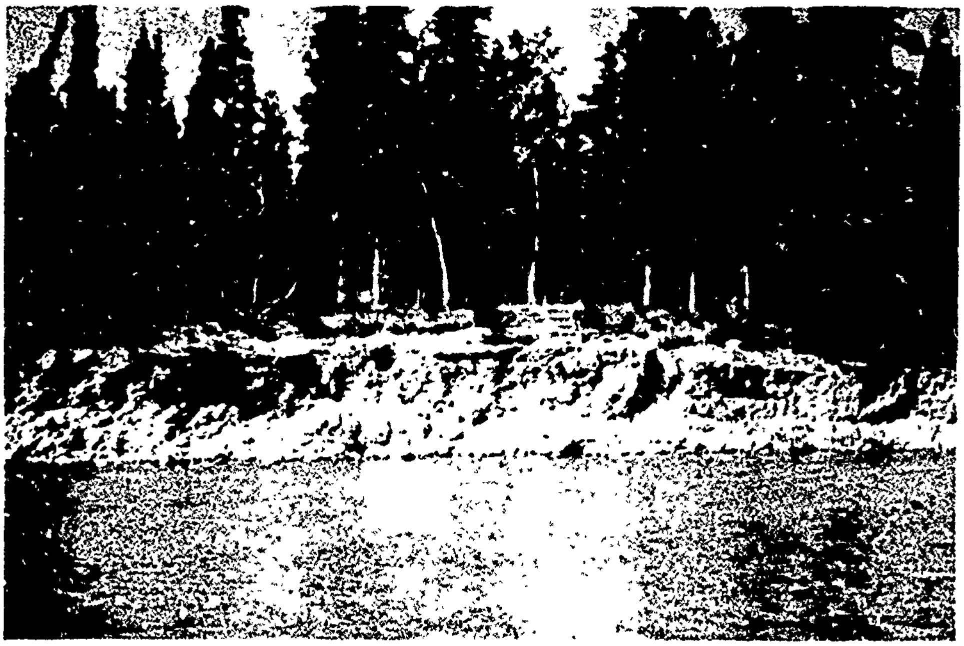
Photograph 6. Stereoscopic pair of an area populated by young spruce in Segment D. This type vegetation is found throughout study area

Photograph 7. Stereoscopic pair of western edge of Rawhide Lake in Segment E

Photograph 8. A dry drainageway mapped as a surface geometry feature in Segment C



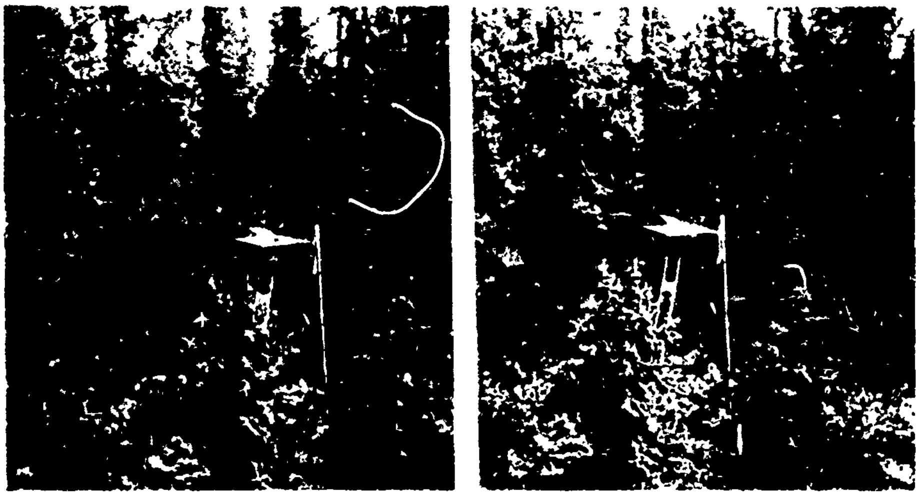
Photograph 9. View of the tank trail in Segment F. Muskeg Hill is marked by the lighter tone along the slope in the center background



Photograph 10. Vertical bank of Jarvis Creek approximately 7 ft high in Segment H

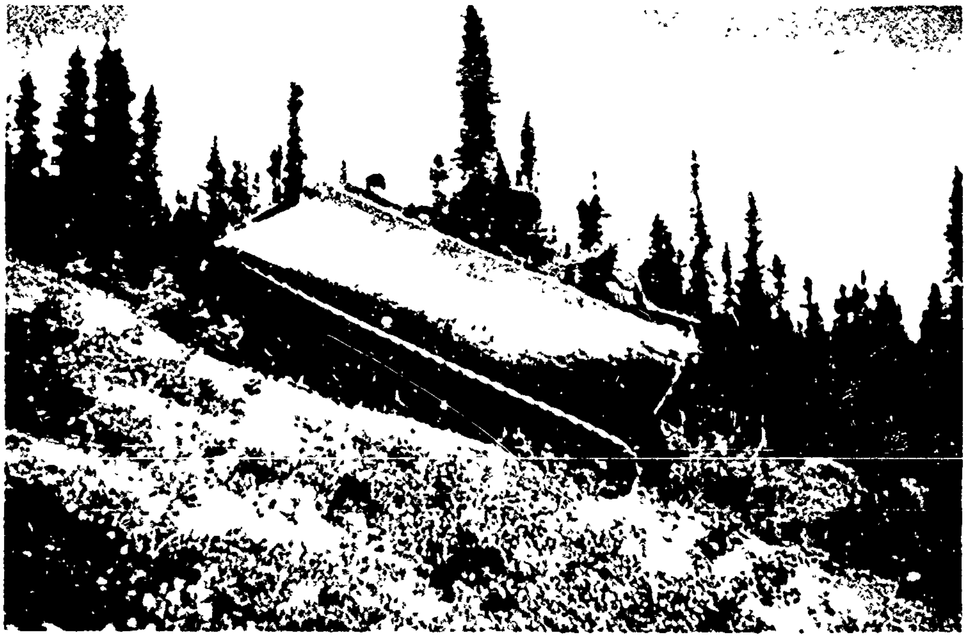
Photograph 11. A lowlying area between tank trail and Jarvis Creek in Segment H. Tall grass is predominant vegetation type

Photograph 12. Looking east across Jarvis Creek in Segment H. Steep escarpment rises above the flood-plain in the background



Photograph 13. Black spruce in Segment I. The plane table is set up for vegetation sampling

Photograph 14. A vegetation assemblage of mainly poplar in Segment J



Photograph 15. M-113 climbing 18-deg slope in Segment I

L E G E N D

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App. Angle	Surface Geometry: Step Height	Vegetation: Stem Diam 2 (In.) 1	3	6	10	Hydro Geom: Contact App Angle	Water Depth
[illegible]	1	1	1	X	X	1	3	4	6	X	X
[illegible]	1	1	1	X	X	1	4	4	6	X	X
[illegible]	1	1	1	X	X	1	4	6	6	X	X
[illegible]	1	1	1	X	X	2	3	4	6	X	X
[illegible]	1	1	1	X	X	2	4	4	5	X	X
[illegible]	1	1	1	X	X	[illegible]	4	4	6	X	X
[illegible]	1	1	1	X	X	2	4	5	6	X	X
[illegible]	1	1	1	X	X	2	4	6	6	X	X
[illegible]	1	1	1	X	X	[illegible]	5	5	6	X	X
[illegible]	1	2	1	X	X	1	2	5	6	X	X
[illegible]	1	2	1	X	X	2	4	5	6	X	X
[illegible]	1	2	1	X	X	2	4	6	6	X	X
[illegible]	1	2	1	X	X	3	5	6	6	X	X
[illegible]	1	2	1	X	X	4	6	6	6	X	X
15	1	2	1	X	X	1	2	3	5	X	X
[illegible]	1	3	1	X	X	1	2	3	6	X	X
17	1	3	1	X	X	1	2	4	5	X	X
18	1	3	1	X	X	1	2	4	6	X	X
[illegible]	1	3	1	X	X	[illegible]	2	5	6	X	X
[illegible]	1	3	1	X	X	1	3	4	6	X	X
[illegible]	1	3	1	X	X	1	3	6	6	X	X
[illegible]	1	3	1	X	X	1	4	6	6	X	X
[illegible]	1	3	1	X	X	2	[illegible]	4	5	X	X
[illegible]	1	3	1	X	X	2	3	3	6	X	X
[illegible]	1	3	1	X	X	[illegible]	3	4	5	X	X
26	1	[illegible]	1	X	X	2	3	4	6	X	X
[illegible]	1	3	1	X	X	2	3	5	6	X	X
[illegible]	1	3	1	X	X	2	4	4	5	X	X
[illegible]	1	3	1	X	X	[illegible]	4	4	6	X	X
30	1	3	1	X	X	[illegible]	4	5	6	X	X
31	1	3	1	X	X	2	4	6	6	X	X
[illegible]	1	3	1	X	X	[illegible]	5	5	6	X	X
33	1	3	1	X	X	[illegible]	5	6	6	X	X
[illegible]	1	3	1	X	X	3	3	3	3	X	X
[illegible]	1	3	1	X	X	[illegible]	3	4	5	X	X
[illegible]	1	3	1	[illegible]	X	[illegible]	3	5	5	X	X
3	1	3	1	X	X		3	5	6	X	X
38	1	3		X	X	[illegible]	3	6	6	X	X
[illegible]	1	3	1	X	X	[illegible]	4	5	6	X	X
[illegible]	1	3	1	X	X	3	5	5	6	X	X
[illegible]	1	3	1	X	X	3	[illegible]	6	6	X	X
[illegible]	1	3	1	X	X	4	4	5	6	X	X
[illegible]	1	3	[illegible]	X	X	4	4	6	6	X	X
[illegible]	1	3	[illegible]	X	X	4	5	6	[illegible]	X	X
45	1	3	1	X	X	5	5	6	6	X	X
[illegible]	1	3	1	X	X	5	6	6	6	X	X
[illegible]		3	1	X	X	6	6	6	6	X	X
[illegible]	1	3	1		4	1	[illegible]		5	X	X
[illegible]	1	3	1	[illegible]		[illegible]	3	3	6	X	X
[illegible]	1	3	1	3	1	1	[illegible]	4	5	X	X
[illegible]	1	3	1	4	[illegible]	2	5	6	6	X	X
[illegible]	1	[illegible]	[illegible]	4	3		3	3	[illegible]	X	X
[illegible]	[illegible]	[illegible]	1	6	[illegible]	1	[illegible]	3	5	X	X
[illegible]	1	3	1	6	[illegible]	1	[illegible]	5	6	X	X
[illegible]	1	[illegible]	1	6	[illegible]	3	[illegible]	5	6	X	X
[illegible]	1	[illegible]	[illegible]	[illegible]		3		6	6	X	X
[illegible]	1	3	[illegible]	6	[illegible]	1	[illegible]	3	[illegible]	X	X
[illegible]	1	3	[illegible]	6			3	[illegible]	[illegible]	[illegible]	X
[illegible]	1	[illegible]	1				3	3	6	[illegible]	X
[illegible]		[illegible]	1		[illegible]	[illegible]	3	[illegible]		X	X
[illegible]	1	[illegible]		[illegible]	1	1		[illegible]	[illegible]	X	X
[illegible]	[illegible]	[illegible]	1	6			[illegible]	3	[illegible]	X	X
[illegible]		[illegible]		[illegible]				6	6	X	X
[illegible]				[illegible]	[illegible]	3	[illegible]	6	6	X	X

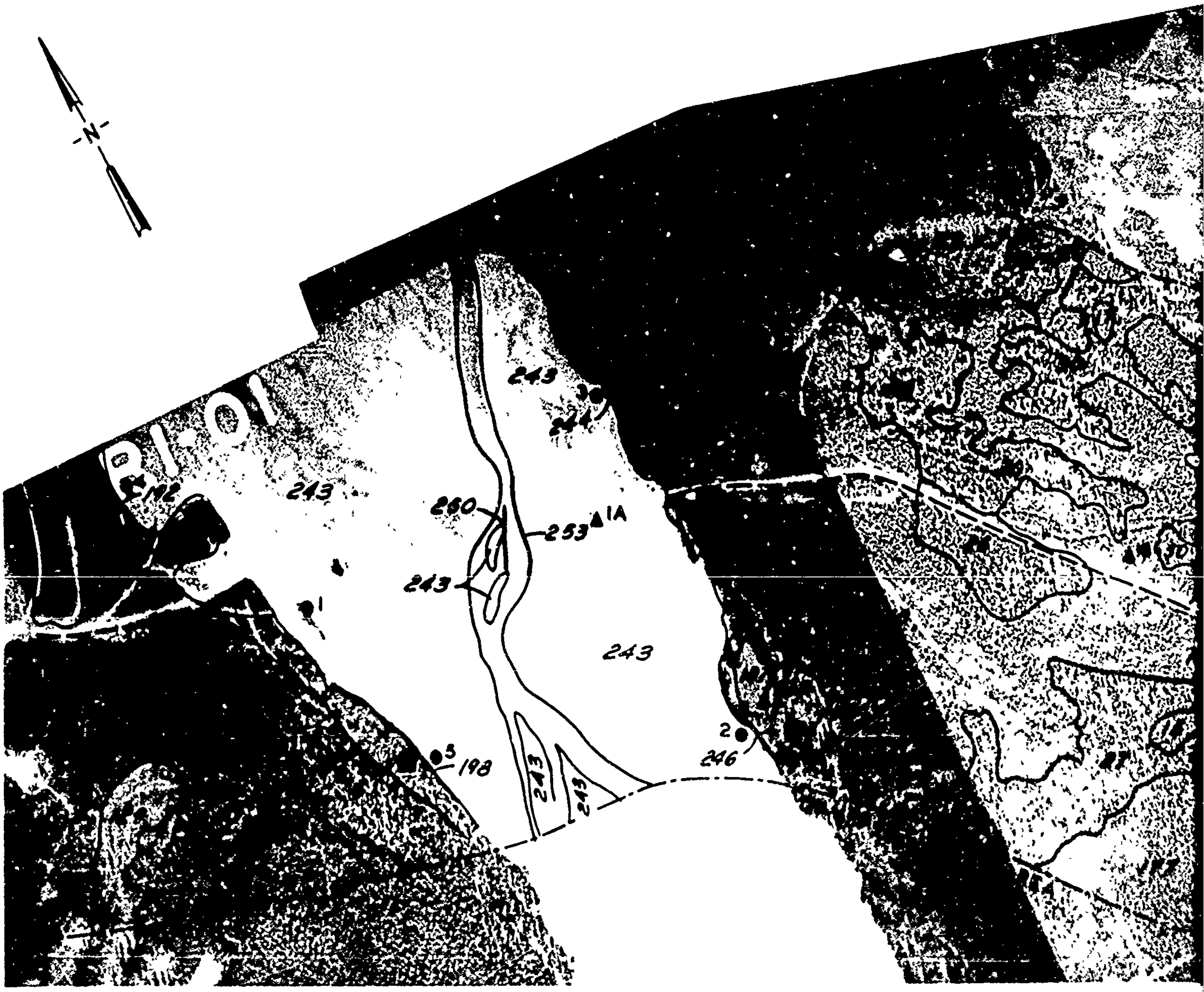
Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam 2 (In.) 1	3	6	10	Hydro Geom: Contact App Angle	Water Depth
[illegible]	1	3	1	8	4	1	2	3	5	X	X
[illegible]	1	3	2	X	X	1	2	4	6	X	X
[illegible]	1	3	2	X	X	1	2	5	6	X	X
[illegible]	1	3	2	X	X	1	3	4	6	X	X
[illegible]	1	5	[illegible]	X	X	1	3	6	6	X	X
[illegible]	1	3	2	X	X	1	4	6	6	X	X
[illegible]	1	3	[illegible]	X	[illegible]	2	2	4	5	[illegible]	X
[illegible]	1	3	2	X	X	2	[illegible]	4	6	X	X
[illegible]	1	3	2	X	X	2	3	4	6	X	X
[illegible]	1	3	2	X	X	2	3	5	6	X	X
[illegible]	1	3	2	X	X	2	4	4	6	X	X
[illegible]	1	3	2	X	X	2	4	5	6	X	X
[illegible]	1	3	[illegible]	X	X	2	4	4	6	X	X
[illegible]	1	3	2	X	X	2	[illegible]	6	6	X	X
[illegible]	1	3	2	X	X	3	3	5	6	X	X
[illegible]	1	3	2	X	X	3	4	5	6	X	X
[illegible]	1	3	2	X	X	3	5	5	6	X	X
[illegible]	1	3	2	X	X	3	5	6	6	X	X
[illegible]	1	3	2	X	X	4	4	5	6	X	X
[illegible]	1	3	2	X	X	4	4	6	6	X	X
[illegible]	1	3	2	X	X	4	5	6	6	X	X
[illegible]	1	3	2	X	X	5	5	6	6	X	X
[illegible]	1	3	2	X	X	6	6	[illegible]	6	X	X
[illegible]	1	3	3	X	X	1	2	4	5	X	X
[illegible]	1	3	3	X	X	1	2	[illegible]	6	X	X
[illegible]	1	3	3	X	X	1	2	5	6	X	X
[illegible]	1	3	3	X	X	1	3	4	6	X	X
[illegible]	1	3	3	X	X	1	3	6	6	X	X
[illegible]	1	3	3	X	X	1	4	6	6	X	X
[illegible]	1	3	3	X	X	2	2	4	5	X	X
[illegible]	1	3	3	X	X	2	2	4	6	X	X
[illegible]	1	3	3		X	2	3	4	6	X	X
[illegible]	1	3	3	X	X	2	3	5	6	X	X
[illegible]	1	3	3	X	X	2	4	[illegible]	6	X	X
[illegible]	1	3	3	X	X	2	4	5	6	X	X
[illegible]	1	3	3	X	X	2	4	6	6	X	X
[illegible]	1	3	3	X	X	3	4	5	6	X	X
[illegible]	1	3	3	X	X	[illegible]	5	5	6	X	X
[illegible]	1	3	3	X	X	3	5	6	6	X	X
[illegible]	1	3	3	X	X	4	4	5	6	[illegible]	X
[illegible]	1	3	3	X	X	4	4	6	6	X	X
[illegible]	1	3	3	X	X	4	5	6	[illegible]	X	X
[illegible]	1	3	3	X	X	6	6	6	6	X	X
[illegible]	1	3	4	X	X	1	3	4	6	X	X
[illegible]	1	3	4	X	X	1	4	6	6	X	X
[illegible]	1	3	4	X	X	2	2	4	5	X	X
[illegible]	1	3	4	X	X	2	3	4	6	X	X
[illegible]	1	3	4	X	X	2	3	5	6	X	X
[illegible]	1	3	4	X	X	2	4	4	5	X	X
[illegible]	1	3	4	X	X	[illegible]	4	5	[illegible]	X	X
[illegible]	1	3	4	X	X	[illegible]	4	6	6	X	X
[illegible]	1	3	4	X	X	3	4	5	6	X	X
[illegible]	1	3	4	X	X	4	4	5	6	X	X
[illegible]	1	3	4	X	X	4	4	6	6	X	X
[illegible]	1	3	4	X	X	6	6	6	6	X	X
[illegible]	1	3	5	X	X	2	[illegible]	4	5	X	X
[illegible]	1	3	5	X	X	[illegible]	3	5	6	X	X
[illegible]	1	3	5	X		6	6	6	6	X	X
[illegible]	[illegible]		1	X	X	1	3	6	6	X	
[illegible]	[illegible]	[illegible]	1	X	X	1	5	6	6	X	X
[illegible]	[illegible]		1	X	X	[illegible]	5	6	6	X	X
[illegible]	[illegible]	[illegible]	1	X	X	[illegible]	5	5	6	X	X
[illegible]	[illegible]	[illegible]	1	X	X	[illegible]	5	6	6	X	X
[illegible]		[illegible]	1	X	X	5	6	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetat[ion]: Stem D[i]am 1	3
129	2	2	1	X	X	6	6
[illegible]	2	2	2	X	X	1	5
[illegible]	2	2	2	X	X	4	5
[illegible]	2	2	3	[illegible]	X	5	6
[illegible]	5	1	1	X	X	6	6
[illegible]	3	1	2	X	X	6	6
[illegible]	3	2	1	X	X	1	3
[illegible]	3	2	1	X	X	1	5
[illegible]	3	2	1	X	X	2	4
[illegible]	5	2	1	X	X	[illegible]	5
[illegible]	3	2	1	X	X	[illegible]	3
[illegible]	3	2	1	X	X	3	[illegible]
[illegible]	3	[illegible]	1	X	X	4	5
[illegible]	3	2	1	X	X	4	6
[illegible]	3	2	1	X	X	5	6
[illegible]	3	2	2	X	X	1	5
[illegible]	3	2	2	X	X	2	4
[illegible]	3	2	2	X	X	3	5
[illegible]	3	[illegible]	2	X	X	5	6
[illegible]	3	2	[illegible]	X	X	6	6
[illegible]	3	2	3	X	X	1	5
[illegible]	3	2	3	X	X	3	5
[illegible]	3	[illegible]	3	X	X	5	6
[illegible]	3	2	4	X	X	1	5
[illegible]	3	3	1	X	X	2	2
[illegible]	3	3	1	X	X	2	3
[illegible]	3	3	1	X	X	3	3
[illegible]	3	3	1	X	X	5	5
[illegible]	3	3	X	X	X	6	6
[illegible]	3	3	X	X	X	6	6
[illegible]	3	3	2	X	X	2	3
[illegible]	3	3	2	X	X	5	6
[illegible]	3	3	3	X	X	2	3
[illegible]	3	3	3	X	X	3	3
[illegible]	3	3	3	X	X	4	5
[illegible]	3	3	4	X	X	4	5
[illegible]	[illegible]	3	1	X	X	1	2
166	4	3	1	X	X	1	2
[illegible]	4	3	1	X	X	1	3
[illegible]	4	3	1	X	X	2	2
[illegible]	4	3	1	X	X		2
[illegible]	4	3	1	X	X	[illegible]	3
[illegible]	4	3	1	X	X	[illegible]	3
[illegible]	4	3	1	X	X	[illegible]	3
[illegible]	4	3	1	X	X	2	4
[illegible]	4	3	[illegible]	X	X	[illegible]	4
175	4	3	1	X	X	[illegible]	5
176	4	3	1	X	X	3	3
177	4	3	1	X	X	3	3
[illegible]	4	3	1	X	X	3	3
[illegible]	4	3	1	X	X	3	3
180	4	3	1	X	X	3	4
[illegible]	4	3	1	X	X	3	4
[illegible]	4	3	1	X	X	3	5
[illegible]	4	3	1	[illegible]	X	4	4
[illegible]	4	3	1	X	X	4	5
[illegible]	4	3	1	[illegible]	X	4	5
[illegible]	4	3	1	X	X	5	5
[illegible]	4	3	1	X	X	5	6
[illegible]	4	3	1	[illegible]	X	6	6
[illegible]	4	3	[illegible]	X	X	4	[illegible]
[illegible]	4	3	1	2	3	3	3
[illegible]	4	3	1	3	1	[illegible]	[illegible]
[illegible]	4	3	1	3	1	6	6

*[illegible] indicating the [illegible] (or absence) of the following factors soil type [illegible] stem diameters [illegible] and [illegible] in contact approach angle and water depth
[illegible]
[illegible]

	...e Geometry		Vegetation				Hydro Geom			Surface Condition		Surface Geometry			Vegetation				Hydro Geom	
	App Angle	Step Height	Stem Diam ≥ (In.) 1	3	6	10	Contact App. Angle	Water Depth	Terrain *Unit	Type	Depth of Thaw	Slope	App. Angle	Step Height	Stem Diam ≥ (In.) 1	3	6	10	Contact App.	Water Depth
	X	X	6	6	6	6	X	X	~~193~~	4	3	1	3	2	2	3	5	6	X	X
	X	X	1	5	6	6	X	X	~~194~~	4	3	1	3	3	2	2	4	5	X	X
	X	X	4	5	5	6	X	X	~~195~~	4	3	1	4	2	2	2	4	5	X	X
	X	X	5	6	6	6	X	X	196	4	3	1	4	3	1	2	6	6	X	X
	X	X	6	6	6	6	X	X	197	4	3	1	4	4	3	4	4	5	X	X
	X	X	6	6	6	6	X	X	198	4	3	1	5	5	1	2	6	6	X	X
	X	X	1	3	6	6	X	X	~~199~~	4	3	1	5	5	2	3	4	5	X	X
	X	X	1	5	6	6	X	X	200	4	3	1	6	2	2	3	4	5	X	X
	X	X	2	4	4	6	X	X	~~201~~	4	3	1	7	4	2	2	4	5	X	X
	X	X	2	5	6	6	X	X	~~202~~	4	3	1	8	3	2	3	3	6	X	X
	X	X	3	3	4	5	X	X	~~203~~	4	3	1	8	3	2	3	5	6	X	X
	X	X	3	5	5	6	X	X	~~204~~	4	3	1	8	5	2	2	4	5	X	X
	X	X	4	5	6	6	X	X	~~205~~	4	3	2	X	X	1	2	5	6	X	X
	X	X	4	6	6	6	X	X	~~206~~	4	3	2	X	X	1	3	4	6	X	X
	X	X	5	6	6	6	X	X	~~207~~	4	3	2	X	X	2	3	4	5	X	X
	X	X	1	5	6	6	X	X	~~208~~	4	3	2	X	X	2	3	4	6	X	X
	X	X	2	4	4	6	X	X	~~209~~	4	3	2	X	X	2	3	5	6	X	X
	X	X	3	5	5	6	X	X	~~210~~	4	3	2	X	X	3	3	5	6	X	X
	X	X	5	6	6	6	X	X	~~211~~	4	3	2	X	X	3	4	5	6	X	X
	X	X	6	6	6	6	X	X	~~212~~	4	3	2	X	X	4	4	5	6	X	X
	X	X	1	5	6	6	X	X	~~213~~	4	3	2	X	X	4	5	5	6	X	X
	X	X	3	5	5	6	X	X	~~214~~	4	3	2	X	X	4	5	6	6	X	X
	X	X	5	6	6	6	X	X	~~215~~	4	3	2	X	X	5	5	6	6	X	X
	X	X	1	5	6	6	X	X	~~216~~	4	3	3	X	X	1	2	5	6	X	X
	X	X	2	2	4	6	X	X	~~217~~	4	3	3	X	X	1	3	4	6	X	X
	X	X	2	3	5	6	X	X	~~218~~	4	3	3	X	X	2	3	4	5	X	X
	X	X	3	3	5	5	X	X	~~219~~	4	3	3	X	X	2	3	4	6	X	X
1	X	X	5	5	6	6	X	X	~~220~~	4	3	3	X	X	2	3	5	6	X	X
X	X	X	6	6	6	6	4	1	~~221~~	4	3	3	X	X	3	3	5	6	X	X
X	X	X	5	6	6	6	4	2	~~222~~	4	3	3	X	X	3	4	5	6	X	X
2	X	X	2	3	5	6	X	X	~~223~~	4	3	3	X	X	4	4	5	6	X	X
2	X	X	5	6	6	6	X	X	~~224~~	4	3	3	X	X	4	5	5	6	X	X
3	X	X	2	[illegible]		6	X	X	~~225~~	4	3	3	X	X	4	6	6	6	X	X
3	X	X	3	3	5	5	X	X	~~226~~	4	3	3	X	X	5	5	6	6	X	X
3	X	X	4	5	5	6	X	X	~~227~~	4	3	4	X	X	2	3	5	6	X	X
4	X	X	4	5	5	6	X	X	~~228~~	4	3	4	X	X	3	3	5	6	X	X
1	X	X	1	2	5	6	X	[illegible]	~~229~~	4	3	4	X	X	3	3	6	6	X	X
1	X	X	1	2	6	6	X	X	~~230~~	4	3	4	X	X	3	4	5	6	X	X
1	X	X	1	3	4	6	X	X	~~231~~	4	3	4	X	X	4	5	5	6	X	X
1	X	X	2	2	4	5	[illegible]	X	~~232~~	4	3	5	X	X	2	3	5	6	X	X
1	X	X	2	2	5	6	X	X	~~233~~	4	3	5	X	X	3	4	5	6	X	X
1	X	X	2	3	4	5	X	X	~~234~~	4	3	5	X	X	4	5	5	6	X	X
1	X	X	2	3	4	6	X	X	~~235~~	5	3	1	X	X	1	2	4	6	X	X
1	X	X	[illegible]	3	5	6	X	X	~~236~~	5	3	1	X	X	1	2	5	6	X	X
1	X	X	[illegible]	4	4	6	X	X	~~237~~	5	3	1	X	X	3	3	5	6	X	X
1	X	X	[illegible]	4	6	6	X	X	~~238~~	5	3	1	X	X	3	5	5	6	X	X
1	X	X	2	5	6	6	X	X	~~239~~	5	3	1	X	X	5	5	6	[illegible]	X	X
1	X	X	3	3	3	5	X	X	~~240~~	5	3	1	X	X	5	6	6	6	X	X
1	X	X	3	[illegible]	[illegible]	5	X	X	~~241~~	5	3	[illegible]	X	X	6	6	6	6	X	X
1	X	X	3	3	5	5	X	X	242	6	3	1	X	X	5	6	6	6	X	X
1	X	X	3		5	6	X	X	243	6	3	1	X	X	6	6	6	6	X	X
1	X	X	3	4	4	5	X	X	244	6	3	1	1	3	6	6	6	6	X	X
1	X	X	3	4	5	6	X	X	~~245~~	6	[illegible]	1	1	4	1	[illegible]	4	6	X	X
1	X	X	3	5	5	6	X	X	246	6	3	1	1	4	3	4	4	5	X	X
1	X	X	4	4	5	6	X	X	~~247~~	6	3	1	1	5	1	2	4	6	X	X
1	X	X	4	5	5	6	X	X	~~248~~	6	3	1	4	2	6	6	6	6	X	X
1	X	X	4	5	6	6	X	X	~~249~~	6	3	[illegible]	6	1	6	6	6	6	X	X
1	X	X	5	5	6	6	X	X	250	6	3	1	6	2	6	6	6	6	X	X
1	X	[illegible]	5	6	6	6	X	X	~~251~~	6	3	1	7	3	6	6	6	6	X	X
1	X	X	6	6	6	6	X	X	~~252~~	6	3	1	7	4	6	6	6	6	X	X
[illegible]	X	X	4	5	6	6	X	X	253	6	3	1	8	2	6	6	6	6	X	X
1	2	3	3	3	3	5	X	X	~~254~~	6	3	1	6	4	1	2	4	6	X	X
1	3	1	[illegible]	[illegible]	4	5	X	X	~~255~~	6	3	1	8	5	1	2	4	6	X	X
1	3	1	6	6	6	6	X	X	~~256~~	6	3	1	8	5	6	6	6	6	X	X

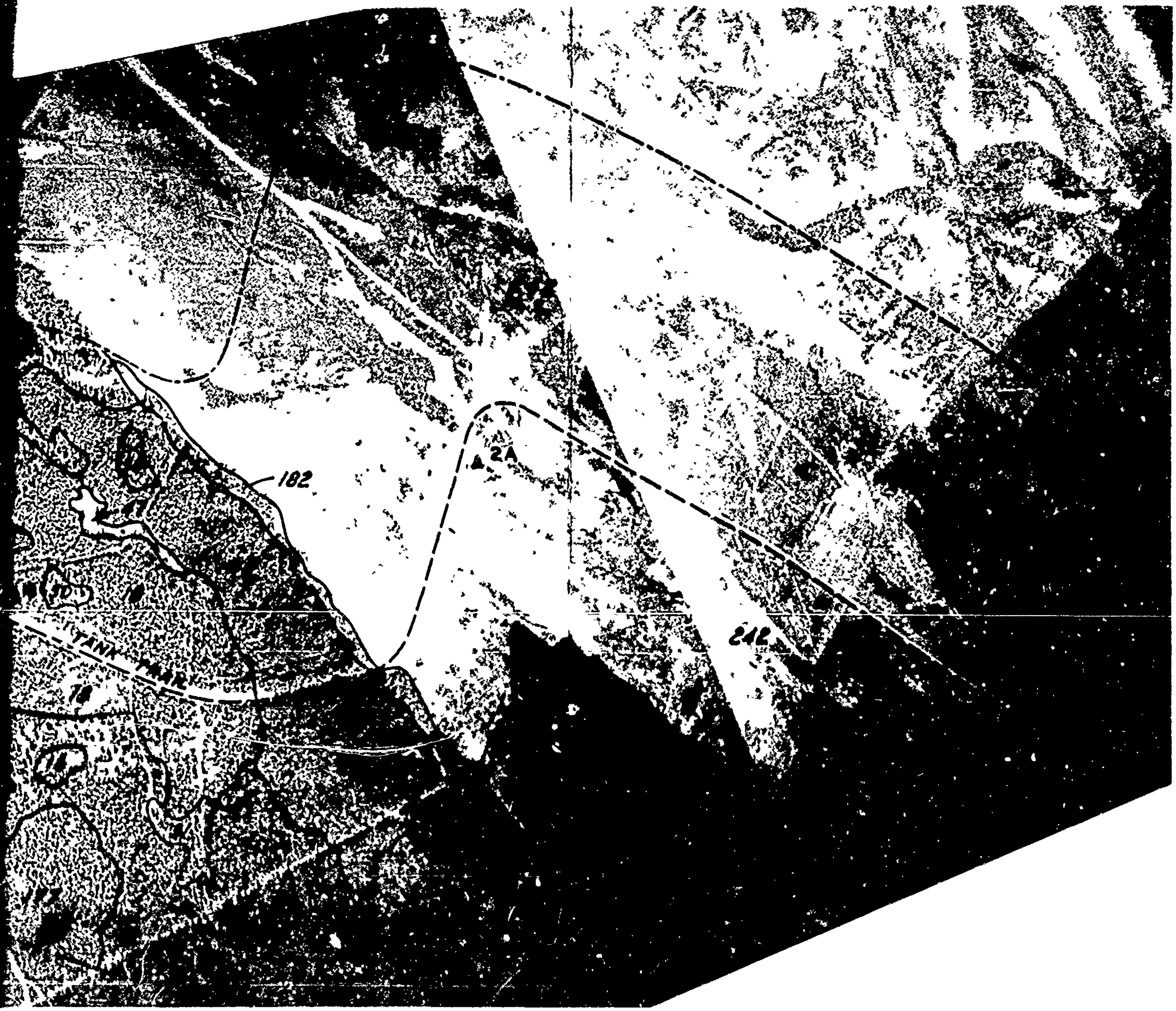
Terra. Factor Family	Terrain Factor	Unit of Measure	Class Ranges 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	OL	SM	SP	GP		
	Depth of Thaw	In.	0-24	24-42	>42					
Surface Geometry	Slope	Deg	0-3	3-6	6-12	12-26.5	>26.5			
	Terrain Approach	Deg	<100	100-125	125-150	150-165	165-180	180-200	200-210	210->220
	Step Height	In.	0-12	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1,3,6, & 10 in. in diameter	Ft.	0-5	5-10	10-20	20-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg.	<145	145-155	155-165	165->180				
	Water Depth	Ft.	3-6	6-10						



KEY

- ▲ SURFACE CONDITION SAMPLE SITE
- ● SURFACE GEOMETRY SAMPLE SITE
- ■ VEGETATION SAMPLE SITE

NOTE SEE FIG 2 FOR INDEX OF AREA COVERED



TERRAIN TYPE MAP
SEGMENT A

SCALE IN FEET

500 0 500

PLA

LEGEND

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam 2 (In.) 1	3	6	10	Hydro Geom Contact: App Angle	Water Depth
[illegible]	1	1	1	X	X	1	3	4	6	X	X
[illegible]	1	1	1	X	X	1	4	4	6	X	X
[illegible]	1	1	1	X	X	1	6	6	6	X	X
[illegible]	1	1	1	X	X	2	3	4	6	X	X
[illegible]	1	1	1	X	X	2	4	4	5	X	X
[illegible]	1	1	1	X	X	[illegible]	4	4	6	X	X
[illegible]	1	1	1	X	X	2	4	5	6	X	X
[illegible]	1	1	1	X	X	2	4	6	6	X	X
[illegible]	1	1	1	X	X	[illegible]	5	5	6	X	X
[illegible]	1	2	1	X	X	1	2	5	6	X	X
[illegible]	1	2	1	X	X	2	4	5	6	X	X
[illegible]	1	2	1	X	X	2	4	6	6	X	X
[illegible]	1	2	1	X	X	3	5	6	6	X	X
[illegible]	1	2	1	X	X	4	[illegible]	6	6	X	X
15	1	2	1	X	X	1	2	3	5	X	X
16	1	3	1	X	X	1	2	3	6	X	X
[illegible]	1	3	1	X	X	1	2	4	5	X	X
[illegible]	1	3	1	X	X	1	2	4	6	X*	X
[illegible]	1	3	1	X	X	1	2	5	6	X	X
[illegible]	1	3	1	X	X	1	3	4	6	X	X
[illegible]	1	3	1	X	X	1	3	6	6	X	X
[illegible]	1	3	1	X	X	1	4	6	6	X	X
23	1	3	1	X	X	[illegible]	2	4	5	X	X
[illegible]	1	3	1	X	X	2	3	3	6	X	X
[illegible]	1	3	1	X	X	[illegible]	3	4	5	X	X
26	1	3	1	X	X	[illegible]	3	4	6	X	X
[illegible]	1	3	1	X	X	[illegible]	3	5	6	X	X
[illegible]	1	3	1	X	X	2	4	4	5	X	X
[illegible]	1	3	1	X	X	[illegible]	4	4	6	X	X
30	1	3	1	X	X	[illegible]	4	5	6	X	X
[illegible]	1	3	1	X	X	[illegible]	4	6	6	X	X
32	1	3	1	X	X	[illegible]	5	5	6	X	X
[illegible]	1	3	1	X	X	[illegible]	5	6	6	X	X
34	1	3	1	X	X	3	3	3	3	X	X
[illegible]	1	3	1	X	X	3	3	4	5	X	X
[illegible]	1	3	1	X	X	3	3	5	5	X	X
[illegible]	1	3	1	X	X	3	3	5	6	X	X
[illegible]	1	3	1	X	X	3	3	6	6	X	X
[illegible]	1	3	1	X	X	3	4	5	6	X	X
[illegible]	1	3	1	X	X	3	5	5	6	X	X
41	1	3	1	X	X	3	5	6	6	X	X
[illegible]	1	3	1	X	X	4	4	5	6	X	X
[illegible]	1	3	1	X	X	4	4	6	6	X	X
[illegible]	1	3	1	X	X	4	5	6	6	X	X
[illegible]	1	3	1	X	X	5	5	6	6	X	X
[illegible]	1	3	1	X	X	5	6	6	6	X	X
[illegible]	1	3	1	X	X	6	6	6	6	X	X
[illegible]	1	3	1	[illegible]	4	1	[illegible]	3	5	X	X
[illegible]	1	3	1	2	[illegible]	[illegible]	3	3	6	X	X
[illegible]	1	3	1	3	1	1	[illegible]	4	5	X	X
[illegible]	1	3	1	4	[illegible]	2	5	6	6	X	X
[illegible]	1	3	1	4	3	3	3	3	3	X	X
[illegible]	1	3	1	6	[illegible]	1	[illegible]	3	5	X	X
[illegible]	1	3	1	6	[illegible]	1	[illegible]	5	6	X	X
[illegible]	1	3	1	6	2	3	5	5	6	X	X
[illegible]	1	3	1	6	[illegible]	3	5	6	6	X	X
[illegible]	1	3	1	6	4	1	[illegible]	3	5	X	X
[illegible]	1	3	1	6	5	[illegible]	3	4	6	X	X
[illegible]	1	3	1		[illegible]		3	3	6	X	X
[illegible]	1	3	1	[illegible]	[illegible]	3	3	[illegible]	5	X	X
[illegible]	1	3	1	8	1	1		5	6	X	X
[illegible]	1	[illegible]	1	6	[illegible]		3	3	6	X	X
[illegible]	1	3	1	8			[illegible]	6	6	X	X
[illegible]	1	3		[illegible]	3	3		6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App. Angle	Surface Geometry: Step Height	Vegetation: Stem Diam 2 (In.) 1	3	6	10	Hydro Geom Contact: App Angle	Water Depth
[illegible]	1	3	1	8	4	1	[illegible]	3	5	X	X
[illegible]	1	3	2	X	X	1	2	4	6	X	X
[illegible]	1	3	2	X	X	1	2	3	6	X	X
[illegible]	1	3	2	X	X	1	3	4	6	X	X
[illegible]	1	3	2	X	X	1	3	6	6	X	X
[illegible]	1	3	2	X	X	1	4	6	6	X	X
[illegible]	1	3	2	X	X	2	2	4	5	X	X
[illegible]	1	3	2	X	X	2	2	4	6	X	X
[illegible]	1	3	2	X	X	2	3	4	6	X	X
[illegible]	1	3	2	X	X	2	3	5	6	X	X
[illegible]	1	3	2	X	X	2	4	4	6	X	X
[illegible]	1	3	2	X	X	2	4	5	6	X	X
[illegible]	1	3	2	X	X	2	4	6	6	X	X
[illegible]	1	3	2	X	X	2	5	6	6	X	X
[illegible]	1	3	2	X	X	3	3	5	6	X	X
[illegible]	1	3	2	X	X	3	4	5	6	X	X
[illegible]	1	3	2	X	X	3	5	5	6	X	X
[illegible]	1	3	2	X	X	3	5	6	6	X	X
[illegible]	1	3	2	X	X	4	4	5	6	X	X
[illegible]	1	3	2	X	[illegible]	4	4	6	6	X	X
[illegible]	1	3	2	X	X	4	5	6	6	X	X
[illegible]	1	3	[illegible]	X	X	5	5	6	6	X	X
[illegible]	1	3	2	X	X	6	6	6	6	X	X
[illegible]	1	3	3	X	X	1	2	4	5	X	X
[illegible]	1	3	3	X	X	1	2	4	6	X	X
[illegible]	1	3	3	X	X	1	2	5	6	X	X
[illegible]	1	3	3	X	X	1	3	4	6	X	X
[illegible]	1	3	3	X	X	1	3	6	6	X	X
[illegible]	1	3	3	X	X	1	4	6	6	X	X
[illegible]	1	3	3	X	X	2	2	4	5	X	X
[illegible]	1	3	3	X	X	2	2	4	6	X	X
[illegible]	1	3	3	X	X	2	3	4	6	X	X
[illegible]	1	3	3	X	X	2	3	5	6	X	X
[illegible]	1	3	3	X	X	2	4	4	6	X	X
[illegible]	1	3	3	X	X	2	4	5	6	X	X
100	1	3	3	X	X	2	4	6	6	X	X
101	1	3	3	X	X	3	4	5	6	X	X
[illegible]	1	3	3	X	X	3	5	5	6	X	X
[illegible]	1	3	3	X	X	3	5	6	6	X	X
[illegible]	1	3	3	X	X	4	4	5	6	X	X
[illegible]	1	3	3	X	X	4	4	6	6	X	X
[illegible]	1	3	3	X	X	4	5	6	6	X	X
[illegible]	1	3	3	X	X	6	6	6	6	X	X
[illegible]	1	3	4	X	X	1	3	4	6	X	X
[illegible]	1	3	4	X	X	1	4	6	6	X	X
[illegible]	1	3	4	X	X	2	2	4	5	X	X
[illegible]	1	3	4	X	X	2	3	4	6	X	X
[illegible]	1	3	4	X	[illegible]	2	3	5	6	X	X
[illegible]	1	3	4	X	X	2	4	4	6	X	X
[illegible]	1	3	4	X	X	2	4	5	6	X	X
[illegible]	1	3	4	X	X	[illegible]	4	6	6	X	X
[illegible]	1	3	4	X	X	3	4	5	6	X	X
[illegible]	1	3	4	X	X	4	4	5	6	X	X
[illegible]	1	3	4	X	X	4	4	6	6	X	X
[illegible]	1	3	4	X	X	6	6	6	6	X	X
[illegible]	1	3	5	X	X	2	[illegible]	4	5	X	X
[illegible]	1	3	5	X	X	[illegible]	3	5	6	X	X
[illegible]	1	3	5	X	X	6	6	6	6	X	X
[illegible]	[illegible]	[illegible]	1	X	X	1	3	6	6	X	X
[illegible]	[illegible]	[illegible]	1	X	X	1	5	6	6	X	X
[illegible]	[illegible]	[illegible]	1	X	X	[illegible]	5	6	6	X	X
[illegible]	[illegible]	[illegible]	1	X	X	4	5	5	6	X	X
[illegible]	[illegible]	[illegible]	1	X	X	5	5	6	6	X	X
[illegible]		[illegible]	1	X	X	5	6	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam 2 (In.) 1	3	6	10	Hyd. Contact: App Angle
[illegible]	2	2	1	X	X	6	6	6	6	[illegible]
[illegible]	2	2	2	X	X	1	5	6	6	
[illegible]	2	2	2	X	X	4	5	5	6	
[illegible]	2	2	3	X	X	5	6	6	6	
[illegible]	3	1	1	X	X	6	6	6	6	
[illegible]	3	1	2	X	X	6	6	6	6	
[illegible]	3	2	1	X	X	1	3	6	6	
[illegible]	3	2	1	X	X	1	5	6	6	
[illegible]	3	2	1	X	X	2	4	4	6	
[illegible]	3	2	1	X	X	2	5	6	6	
[illegible]	3	2	1	X	X	3	3	4	5	
[illegible]	3	2	1	X	X	3	5	5	6	
[illegible]	3	2	1	X	X	4	5	6	6	
[illegible]	3	2	1	X	X	4	6	6	6	
[illegible]	3	2	1	X	X	5	6	6	6	
[illegible]	3	2	2	X	X	1	5	6	6	
[illegible]	3	2	2	X	X	2	4	4	6	
[illegible]	3	2	2	X	X	3	5	5	6	[illegible]
[illegible]	3	2	2	X	X	5	6	6	6	
[illegible]	3	2	2	X	X	6	6	6	6	
[illegible]	3	2	3	X	X	1	5	6	6	
[illegible]	3	2	3	X	X	3	5	5	6	
[illegible]	3	2	3	X	X	5	6	6	6	
[illegible]	3	2	4	X	X	1	5	6	6	
[illegible]	3	3	1	X	X	2	2	4	6	[illegible]
[illegible]	3	3	1	X	X	2	3	5	6	[illegible]
[illegible]	3	3	1	X	X	3	3	5	5	[illegible]
[illegible]	3	3	1	X	X	3	5	6	6	[illegible]
[illegible]	3	3	X	X	X	6	6	6	6	
[illegible]	3	3	X	X	X	6	6	6	6	
[illegible]	3	3	2	X	X	2	3	5	6	
[illegible]	3	3	2	X	X	5	6	6	6	
[illegible]	3	3	3	X	X	2	3	5	6	[illegible]
[illegible]	3	3	3	X	X	3	3	5	5	[illegible]
[illegible]	3	3	3	X	X	4	5	5	6	[illegible]
[illegible]	3	3	4	X	X	4	5	5	6	[illegible]
[illegible]	4	3	1	X	X	1	2	5	6	X
[illegible]	4	3	1	X	X	1	2	6	6	X
[illegible]	4	3	1	X	X	1	3	4	6	[illegible]
168	4	3	1	X	X	2	2	4	5	[illegible]
[illegible]	4	3	1	X	X	2	2	5	6	[illegible]
[illegible]	4	3	1	X	X	2	3	4	5	[illegible]
[illegible]	4	3	1	X	X	2	3	4	6	[illegible]
172	4	3	1	X	X	[illegible]	[illegible]	5	6	[illegible]
[illegible]	4	3	1	X	X	2	4	4	6	X
[illegible]	4	3	1	X	X	2	4	6	6	[illegible]
[illegible]	4	3	1	X	X	2	5	6	6	[illegible]
[illegible]	4	3	1	X	X	3	3	3	5	X
[illegible]	4	3	1	X	X	3	3	4	5	[illegible]
[illegible]	4	3	1	X	X	3	3	5	5	[illegible]
179	4	3	1	X	X	3	3	5	6	X
[illegible]	4	3	1	X	X	3	4	4	5	X
[illegible]	4	3	1	X	X	3	4	5	6	[illegible]
[illegible]	4	3	1	X	X	3	5	5	6	[illegible]
[illegible]	4	3	1	X	X	4	4	5	6	[illegible]
[illegible]	4	3	1	X	X	4	5	5	6	[illegible]
[illegible]	4	3	1	X	X	4	5	6	6	X
[illegible]	4	3	1	X	X	5	5	6	6	[illegible]
[illegible]	4	3	1	X	X	5	6	6	6	[illegible]
[illegible]	4	3	1	X	X	6	6	6	6	[illegible]
[illegible]	4	3	[illegible]	X	X	4	5	6	6	
[illegible]	4	3	1	2	3	3	3	3	5	[illegible]
191	4	3	1	3	1	[illegible]		4	5	
[illegible]	4	3	1	3	1	[illegible]	6	6	6	

*Each terrain [illegible] it represents a [illegible] at [illegible] [illegible] are indicating the mapping classes (or absence) of the following factors: soil type, depth of thaw, [illegible] one, approach angle, step height, spacing of stem diameters 2[illegible] 3, 6, and 10 in., contact approach angle, and water depth. Mapping class ranges of each factor are shown to the right.

[illegible] mapped

[illegible]

A

Geometry		Vegetation				Hydro Geom			Surface Condition		Surface Geometry			Vegetation				Hydro Geom	
						Contact				Depth								Contact	
App. Angle	Step Height	Stem Diam ≥ (In.) 1	3	6	10	App. Angle	Water Depth	Terrain *Unit	Type	of Thaw	Slope	App. Angle	Step Height	Stem Diam ≥ (In.) 1	3	6	10	App.	Water Depth
[illegible]	X	6	6	6	6	X	X	193	4	3	1	3	2	2	3	5	6	X	X
[illegible]	X	1	5	6	6	X	X	194	4	3	1	3	3	2	2	4	5	X	X
X	X	4	5	5	6	X	X	195	4	3	1	4	2	2	2	4	5	X	X
X	X	5	6	6	6	X	X	~~196~~	4	3	1	4	3	1	2	6	6	X	X
X	X	6	6	6	6	X	X	~~197~~	4	3	1	4	4	3	4	4	5	X	X
X	X	6	6	6	6	X	X	~~198~~	4	3	1	5	5	1	2	6	6	X	X
X	X	1	3	6	6	X	X	~~199~~	4	3	1	5	5	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~200~~	4	3	1	6	2	2	3	4	5	X	X
X	X	2	4	4	6	X	X	201	4	3	1	7	4	2	2	4	5	X	X
X	X	2	5	6	6	X	X	~~202~~	4	3	1	8	3	2	3	3	6	X	X
X	X	3	3	4	5	X	X	203	4	3	1	8	3	2	3	5	6	X	X
X	X	3	5	5	6	X	X	204	4	3	1	8	5	2	2	4	5	X	X
X	X	4	5	6	6	X	X	~~205~~	4	3	2	X	X	1	2	5	6	X	X
X	X	4	6	6	6	X	X	~~206~~	4	3	2	X	X	1	3	4	6	X	X
X	X	5	6	6	6	X	X	~~207~~	4	3	2	X	X	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~208~~	4	3	2	X	X	2	3	4	6	X	X
X	X	2	4	4	6	X	X	~~209~~	4	3	2	X	X	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~210~~	4	3	2	X	X	3	3	5	6	X	X
X	X	5	6	6	6	X	X	~~211~~	4	3	2	X	X	3	4	5	6	X	X
X	X	6	6	6	6	X	X	~~212~~	4	3	2	X	X	4	4	5	6	X	X
X	X	1	5	6	6	X	X	~~213~~	4	3	2	X	X	4	5	5	6	X	X
X	X	3	5	5	6	X	X	~~214~~	4	3	2	X	X	4	5	6	6	X	X
X	X	5	6	6	6	X	X	~~215~~	4	3	2	X	X	5	3	6	6	X	X
X	X	1	5	6	6	X	X	~~216~~	4	3	3	X	X	1	2	5	6	X	X
X	X	2	2	4	6	X	X	~~217~~	4	3	3	X	X	1	3	4	6	X	X
X	X	2	3	5	6	X	X	~~218~~	4	3	3	X	X	2	3	4	5	X	X
X	X	3	3	5	5	X	X	~~219~~	4	3	3	X	X	2	3	4	6	X	X
X	X	5	5	6	6	X	X	~~220~~	4	3	3	X	X	2	3	5	6	X	X
X	X	6	6	6	6	4	1	~~221~~	4	3	3	X	X	3	3	5	6	X	X
X	X	6	6	6	6	4	2	~~222~~	4	3	3	X	X	3	4	5	6	X	X
X	X	2	3	5	6	X	X	~~223~~	4	3	3	X	X	4	4	5	6	X	X
X	X	5	6	6	6	X	X	~~224~~	4	3	3	X	X	4	5	5	6	X	X
X	X	2	3	5	6	X	X	~~225~~	4	3	3	X	X	4	6	6	6	X	X
X	X	3	3	5	5	X	X	~~226~~	4	3	3	X	X	5	5	6	6	X	X
X	X	4	5	5	6	X	X	~~227~~	4	3	4	X	X	2	3	5	6	X	X
X	X	4	5	5	6	X	X	~~228~~	4	3	4	X	X	3	3	5	6	X	X
X	X	1	2	5	6	X	X	~~229~~	4	3	4	X	X	3	3	6	6	X	X
X	X	1	2	6	6	X	X	~~230~~	4	3	4	X	X	3	4	5	6	X	X
X	X	1	3	4	6	X	X	~~231~~	4	3	4	X	X	4	5	5	6	X	X
X	X	2	2	4	5	X	X	~~232~~	4	3	5	X	X	2	3	5	6	X	X
X	X	2	2	5	6	X	X	~~233~~	4	3	5	X	X	3	4	5	6	X	X
X	X	2	3	4	5	X	X	~~234~~	4	3	5	X	X	4	5	5	6	X	X
X	X	2	3	4	6	X	X	~~235~~	5	3	1	X	X	1	2	4	6	X	X
X	X	[illegible]	[illegible]	5	6	X	X	~~236~~	5	3	1	X	X	1	2	5	6	X	X
X	X	2	4	4	6	X	X	237	5	3	1	X	X	3	3	5	6	X	X
X	X	2	4	6	6	X	X	238	5	3	1	X	X	3	5	5	6	X	X
X	X	2	5	6	6	X	X	~~239~~	5	3	1	X	X	5	5	6	6	X	X
X	X	3	3	3	5	X	X	240	[illegible]	3	1	X	X	5	6	6	6	X	X
X	X	3	3	4	5	X	X	~~241~~	5	3	2	X	X	6	6	6	6	X	X
X	X	3	3	5	5	X	X	~~242~~	6	3	1	X	X	5	6	6	6	X	X
X	X	3	[illegible]	[illegible]	[illegible]	X	X	243	6	3	1	X	X	6	6	6	6	X	X
X	X	3	4	4	5	X	X	~~244~~	6	3	1	1	3	6	6	6	6	X	X
X	X	3	4	5	6	X	X	~~245~~	6	3	1	1	4	1	2	4	6	X	X
X	X	3	5	5	6	X	X	~~246~~	6	3	1	1	4	3	4	4	5	X	X
X	X	4	4	5	6	X	X	~~247~~	6	3	1	1	5	1	2	4	6	X	X
X	X	4	5	5	6	X	X	~~248~~	6	3	1	4	2	6	6	6	6	X	X
X	X	4	5	6	6	X	X	~~249~~	6	3	1	6	1	6	6	6	6	X	X
X	X	5	5	6	6	X	X	~~250~~	6	3	1	6	[illegible]	6	6	6	6	X	X
X	X	5	6	6	6	X	X	251	6	3	1	7	3	6	6	6	6	X	X
X	X	6	6	6	5	X	X	~~252~~	6	3	1	7	4	6	6	6	6	X	X
X	X	4	5	6	6	X	X	~~253~~	6	3	1	8	2	6	6	6	6	X	X
[illegible]	3	3	3	3	5	X	X	~~254~~	6	3	1	8	4	1	2	4	6	X	X
3	[illegible]	[illegible]	[illegible]	4	5	X	X	~~255~~	6	3	1	8	5	1	2	4	6	X	X
3	1	6	6	6	6	X	X	~~256~~	6	3	1	8	5	6	6	6	6	X	X

Terrain Factor Family	Terrain Factor	Unit of Measure	Class Ranges 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	OL	SM	SP	GP		
	Depth of Thaw	In.	0-24	24-42	>42					
Surface Geometry	Slope	Deg	0-3	3-6	6-12	12-26.5	>265			
	Terrain Approach	Deg	<100	100-125	125-150	150-165	165-180	180-200	200-210	210->240
	Step Height	In.	0-12	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1,3,6, & 10 in. in diameter	Ft.	0-5	5-10	10-20	20-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg.	<145	145-155	155-165	165->180				
	Water Depth	Ft.	3-6	6-10						

NOTE SEE FIG 2 FOR INDEX OF AREA COVERED

KEY

▲ SURFACE CONDITION SAMPLE SITE
● SURFACE GEOMETRY SAMPLE SITE
■ VEGETATION SAMPLE SITE

TERRAIN TYPE MAP
SEGMENT B

SCALE IN FEET

500 0 500

LEGEND

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom: Contact App Angle	Hydro Geom: Water Depth
[illegible]	1	1	1	X	X	1	3	4	6	X	X
[illegible]	1	1	1	X	X	1	4	6	6	X	X
[illegible]	1	1	1	X	X	1	4	6	6	X	X
[illegible]	1	1	1	X	X	2	3	4	6	X	X
[illegible]	1	1	1	X	X	2	4	4	5	X	X
[illegible]	1	1	1	X	X	2	4	4	6	X	X
[illegible]	1	1	1	X	X	2	4	5	5	X	X
[illegible]	1	1	1	X	X	2	4	6	6	X	X
[illegible]	1	1	1	X	X	2	5	5	6	X	X
10	1	2	1	X	X	1	2	5	6	X	X
11	1	2	1	X	X	2	4	5	6	X	X
12	1	2	1	X	X	2	4	6	6	X	X
13	1	2	1	X	X	3	5	6	6	X	X
[illegible]	1	2	1	X	X	4	6	6	6	X	X
[illegible]	1	2	1	X	X	1	2	3	5	X	X
[illegible]	1	3	1	X	X	1	2	3	6	X	X
[illegible]	1	3	1	X	X	1	2	4	5	X	X
[illegible]	1	3	1	X	X	1	2	4	6	X	X
[illegible]	1	3	1	X	X	1	2	5	6	X	X
[illegible]	1	3	1	X	X	1	3	4	6	X	X
[illegible]	1	3	1	X	X	1	3	6	6	X	X
[illegible]	1	3	1	X	X	1	4	6	6	X	X
[illegible]	1	3	1	X	X	2	2	4	5	X	X
[illegible]	1	3	1	X	X	2	3	3	6	X	X
[illegible]	1	3	1	X	X	2	3	4	5	X	X
[illegible]	1	3	1	X	X	2	3	4	6	X	X
[illegible]	1	3	1	X	X	2	3	5	6	X	X
[illegible]	1	3	1	X	X	2	4	4	5	X	X
[illegible]	1	3	1	X	X	2	4	4	6	X	X
[illegible]	1	3	1	X	X	2	4	5	6	X	X
[illegible]	1	3	1	X	X	2	4	6	6	X	X
[illegible]	1	3	1	X	X	2	5	5	6	X	X
[illegible]	1	3	1	X	X	2	5	6	6	X	X
[illegible]	1	3	1	X	X	3	3	3	3	X	X
[illegible]	1	3	1	X	X	3	3	4	5	X	X
[illegible]	1	3	1	X	X	3	3	5	5	X	X
[illegible]	1	3	1	X	X	3	3	5	6	X	X
[illegible]	1	3	1	X	X	3	3	6	6	X	X
[illegible]	1	3	1	X	X	3	4	5	6	X	X
[illegible]	1	3	1	X	X	3	5	5	6	X	X
[illegible]	1	3	1	X	X	3	5	6	6	X	X
[illegible]	1	3	1	X	X	4	4	5	6	X	X
[illegible]	1	3	1	X	X	4	4	6	6	X	X
[illegible]	1	3	1	X	X	4	5	6	6	X	X
[illegible]	1	3	1	X	X	5	5	6	6	X	X
[illegible]	1	3	1	X	X	5	6	6	6	X	X
[illegible]	1	3	1	X	X	5	6	6	6	X	X
[illegible]	1	3	1		4	1	2	3	5	X	X
[illegible]	1	3	1	2	1	2	3	3	6	X	X
[illegible]	1	3	1	3	1	1	2	4	5	X	X
1	1	3	1	4	2	2	5	6	6	X	X
[illegible]	1	3	1	4	3	3	3	3	3	X	X
[illegible]	1	3	1	6	2	1	2	3	5	X	X
[illegible]	1	3	1	6	2	1	2	5	6	X	X
[illegible]	1	3	1	6	2	3	5	5	6	X	X
[illegible]	1	3	1	6	2	3	5	6	6	X	X
[illegible]	1	3	1	6	4	1	2	3	5	X	X
[illegible]	1	3	1	6	5	2	3	4	6	X	X
[illegible]	1	3	1	[illegible]	2	2	2	3	6	X	[illegible]
[illegible]	1	3	1	[illegible]	2	3	3	4	5	X	X
[illegible]	1	1	1	6	4	1		5	6	X	X
[illegible]	1	3	1	6	2	2	3	3	6	X	X
63	1	3	1	6	2		5	6	6	X	X
64	1	3	1	6	3	3	5	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom: Contact App. Angle	Hydro Geom: Water Depth
[illegible]	1	3	1	6	[illegible]	1	2	3	5	X	X
[illegible]	1	3	2	X	X	1	2	4	6	X	X
[illegible]	1	3	2	X	X	1	2	5	6	X	X
[illegible]	1	3	2	X	X	1	3	4	6	X	X
[illegible]	1	3	2	X	X	1	3	6	6	X	X
[illegible]	1	3	2	X	X	1	4	6	6	X	X
[illegible]	1	3	2	X	X	2	2	4	5	X	X
[illegible]	1	3	2	X	X	2	2	4	6	X	X
[illegible]	1	3	2	X	X	2	3	4	6	X	X
[illegible]	1	3	2	X	X	2	3	5	6	X	X
[illegible]	1	3	2	X	X	2	4	4	6	X	X
[illegible]	1	3	2	X	X	2	4	5	5	X	X
[illegible]	1	3	2	X	X	2	4	6	6	X	X
[illegible]	1	3	2	X	X	2	5	6	6	X	X
[illegible]	1	3	2	X	X	3	3	5	6	X	X
[illegible]	1	3	2	X	X	3	4	5	6	X	X
[illegible]	1	3	2	X	X	3	5	5	6	X	X
[illegible]	1	3	2	X	X	3	5	6	6	X	X
[illegible]	1	3	2	X	X	4	4	5	6	X	X
[illegible]	1	3	2	X	X	4	4	6	6	X	X
[illegible]	1	3	2	X	X	4	5	6	6	X	X
[illegible]	1	3	2	X	X	5	5	6	6	X	X
[illegible]	1	3	2	X	X	6	6	6	6	X	X
[illegible]	1	3	3	X	X	1	2	4	5	X	X
[illegible]	1	3	3	X	X	1	2	4	6	X	X
[illegible]	1	3	3	X	X	1	2	5	6	X	X
[illegible]	1	3	3	X	X	1	3	4	6	X	X
[illegible]	1	3	3	X	X	1	3	6	6	X	X
[illegible]	1	3	3	X	X	1	4	6	6	X	X
[illegible]	1	3	3	X	X	2	2	4	5	X	X
[illegible]	1	3	3	X	X	2	2	4	6	X	X
[illegible]	1	3	3	X	X	2	3	4	6	X	X
[illegible]	1	3	3	X	X	2	3	5	6	X	X
[illegible]	1	3	3	X	X	2	4	4	6	X	X
[illegible]	1	3	3	X	X	2	2	5	6	X	X
100	1	3	3	X	X	2	4	6	6	X	X
101	1	3	3	X	X	3	4	5	6	X	X
[illegible]	1	3	3	X	X	3	5	5	6	X	X
[illegible]	1	3	3	X	X	3	5	6	6	X	X
[illegible]	1	3	3	X	X	4	4	5	6	X	X
[illegible]	1	3	3	X	X	4	4	6	6	X	X
[illegible]	1	3	3	X	X	4	5	6	6	X	X
[illegible]	1	3	3	X	X	6	6	6	6	X	X
[illegible]	1	3	4	X	X	1	3	4	6	X	X
[illegible]	1	3	4	X	X	1	4	6	6	X	X
[illegible]	1	3	4	X	X	2	2	4	5	X	X
[illegible]	1	3	4	X	X	2	3	4	6	X	X
[illegible]	1	3	4	X	X	2	3	5	6	X	X
[illegible]	1	3	4	X	X	2	4	4	6	X	X
[illegible]	1	3	4	X	X	2	4	5	6	X	X
[illegible]	1	3	4	X	X	2	4	6	6	X	X
[illegible]	1	3	4	X	X	3	4	5	6	X	X
[illegible]	1	3	4	X	X	4	4	5	6	X	X
[illegible]	1	3	4		X	4	4	6	6	X	X
[illegible]	1	3	4	X	X	6	6	6	6	X	X
[illegible]	1	3	5	X	X	2	2	4	5	X	X
[illegible]	1	3	5	X	X	2	3	5	6	X	X
[illegible]	1	3	5	X	X	6	6	6	6	X	X
[illegible]	2	2	1	X	X	1	3	6	6	X	X
[illegible]	2	2	1	X	X	1	5	6	6	X	X
[illegible]	2	2	1	X	X	2	5	6	6	X	X
[illegible]	2	2	1	X	X	4	2	5	6	X	X
[illegible]	2	2	1	X	X	5	5	6	6	X	X
[illegible]	2	2	1	X	X	5	6	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom: Contact App Angle	Hydro Geom: Water Depth
[illegible]	2	2	1	X	X	6	6	6	6	X	[illegible]
[illegible]	2	2	2	X	X	1	5	6	6	X	[illegible]
[illegible]	2	2	2	X	X	4	5	5	6	X	[illegible]
[illegible]	2	2	3	X	X	5	6	6	6	X	[illegible]
[illegible]	3	1	1	X	X	6	6	6	6	X	[illegible]
[illegible]	3	1	2	X	X	6	6	6	6	X	[illegible]
[illegible]	3	2	1	X	X	1	3	6	6	X	[illegible]
[illegible]	3	2	1	X	X	1	5	6	6	X	[illegible]
[illegible]	3	2	1	X	X	2	4	4	6	X	[illegible]
[illegible]	3	2	1	X	X	2	5	6	6	X	[illegible]
[illegible]	3	2	1	X	X	3	3	4	5	X	[illegible]
[illegible]	3	2	1	X	X	3	5	5	6	X	[illegible]
[illegible]	3	2	1	X	X	4	5	6	6	X	[illegible]
[illegible]	3	2	1	X	X	4	6	6	6	X	[illegible]
143	3	2	1	X	X	5	6	6	6	X	[illegible]
[illegible]	3	2	2	X	X	1	5	6	6	X	[illegible]
[illegible]	3	2	2	X	X	2	4	4	6	X	[illegible]
[illegible]	3	2	2	X	X	3	5	5	6	X	[illegible]
[illegible]	3	2	2	X	X	5	6	6	6	X	[illegible]
[illegible]	3	2	2	X	X	6	6	6	6	X	[illegible]
[illegible]	3	2	3	X	X	1	5	6	6	X	[illegible]
[illegible]	3	2	3	X	X	3	5	5	6	X	[illegible]
[illegible]	3	2	3	X	X	5	6	6	6	X	[illegible]
[illegible]	3	2	4	X	X	1	5	6	6	X	[illegible]
[illegible]	3	3	1	X	X	2	2	4	6	X	[illegible]
[illegible]	3	3	1	X	X	2	3	5	6	X	[illegible]
[illegible]	3	3	1	X	X	3	3	5	5	X	[illegible]
[illegible]	3	3	1	X	X	5	5	6	6	X	[illegible]
[illegible]	3	3	X	X	X	6	6	6	6	4	[illegible]
[illegible]	3	3	X	X	X	6	6	6	6	4	[illegible]
[illegible]	3	3	2	X	X	2	3	5	6	X	[illegible]
[illegible]	3	3	2	X	X	5	6	6	6	X	[illegible]
[illegible]	3	3	3	X	X	2	3	5	6	X	[illegible]
[illegible]	3	3	3	X	X	3	3	5	5	X	[illegible]
[illegible]	3	3	3	X	X	4	5	5	6	X	[illegible]
[illegible]	3	3	4	X	X	4	5	5	6	X	[illegible]
[illegible]	4	3	1	X	X	1	2	5	6	X	[illegible]
[illegible]	4	3	1	X	X	1	2	6	6	X	[illegible]
[illegible]	4	3	1	X	X	1	3	4	6	X	[illegible]
[illegible]	4	3	1	X	X	2	2	4	5	X	[illegible]
[illegible]	4	3	1	X	X	2	2	5	6	X	[illegible]
[illegible]	4	3	1	X	X	2	3	4	5	X	[illegible]
[illegible]	4	3	1	X	X	2	3	4	6	X	[illegible]
[illegible]	4	3	1	X	X	2	3	5	6	X	[illegible]
[illegible]	4	3	1	X	X	2	4	4	6	X	[illegible]
[illegible]	4	3	1	X	X	2	4	6	6	X	[illegible]
[illegible]	4	3	1	X	X	2	5	6	6	X	[illegible]
[illegible]	4	3	1	X	X	3	3	3	5	X	[illegible]
[illegible]	4	3	1	X	X	3	3	4	5	X	[illegible]
[illegible]	4	3	1	X	X	3	3	5	5	X	[illegible]
[illegible]	4	3	1	X	X	3	3	5	6	X	[illegible]
[illegible]	4	3	1	X	X	3	4	4	5	X	[illegible]
[illegible]	4	3	1	X	X	3	4	5	6	X	[illegible]
[illegible]	4	3	1	X	X	3	5	5	6	X	[illegible]
[illegible]	4	3	1	X	X	4	4	5	6	X	[illegible]
[illegible]	[illegible]	3	1	X	X	4	5	5	6	X	[illegible]
[illegible]	4	3	1	X	X	4	5	6	6	X	[illegible]
[illegible]	4	3	1	X	X	5	5	6	6	X	[illegible]
[illegible]	4	3	1	X	X	5	6	6	6	X	[illegible]
[illegible]	4	3	1	X	X	6	6	6	6	X	[illegible]
[illegible]	4	3	2	X	X	4	5	6	6	X	[illegible]
[illegible]	4	3	1	2	3	3	3	3	5	X	[illegible]
[illegible]	4	3	1	3	1	2	2	4	5	X	[illegible]
[illegible]	4	3	1	3	1	6	6	6	6	X	[illegible]

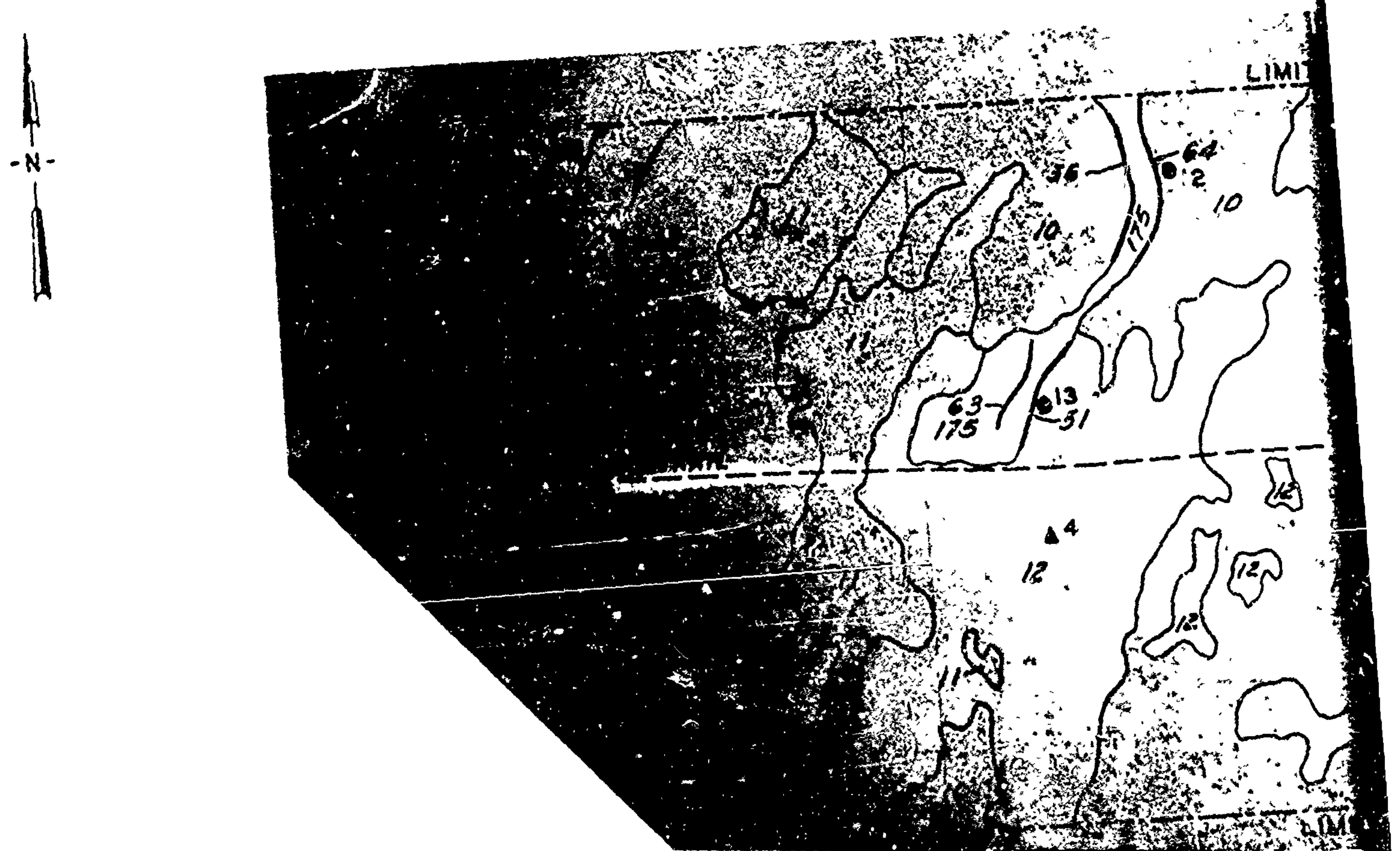
*Each terrain unit represents a combination of n where indicating the mapping classes (or absence) of the following factors: soil type, depth of thaw, slope, approach angle, step height, spacing of stem diameters 2(?), 3, 6, and 10 in., contact approach angle, and water depth. Mapping class ranges of each factor are shown to the right.

+++ Unit not mapped

X Factor absent

…	…metry Step Height	Vegetation Stem Diam ≥ (In) 1	3	6	10	Hydro Geom Contact App Angle	Water Depth	Terrain Unit	Surface Condition Type	Depth of Thaw	Surface Geometry Slope	App Angle	Step Height	Vegetation Stem Diam ≥ (In) 1	3	6	10	Hydro Geom Contact App	Water Depth
	X	6	6	6	6	X	X	393	4	3	1	3	2	4	3	5	6	X	X
	X	1	5	6	6	X	X	394	4	3	1	3	3	4	4	6	5	X	X
	X	4	5	5	6	X	X	395	4	3	1	4	2	4	2	4	5	X	X
	X	5	6	6	6	X	X	396	4	3	1	4	3	1	2	6	6	X	X
	X	6	6	6	6	X	X	397	4	3	1	4	4	3	4	4	5	X	X
	X	6	6	6	6	X	X	398	4	3	1	5	5	1	4	6	6	X	X
	X	1	3	6	6	X	X	399	4	3	1	5	5	2	3	4	5	X	X
	X	1	5	6	6	X	X	400	4	3	1	6	4	2	3	4	5	X	X
	X	2	4	4	6	X	X	401	4	3	1	7	4	4	4	4	5	X	X
	X	4	5	6	6	X	X	402	4	3	1	8	3	2	3	3	6	X	X
	X	3	3	4	5	X	X	403	4	3	1	8	3	2	3	5	6	X	X
	X	3	5	5	6	X	X	404	4	3	1	8	5	2	2	4	5	X	X
	X	4	5	6	6	X	X	405	4	3	2	X	X	1	2	5	6	X	X
	X	4	6	6	6	X	X	406	4	3	2	X	X	1	3	4	6	X	X
	X	5	6	6	6	X	X	407	4	3	4	X	X	2	3	4	5	X	X
	X	1	5	6	6	X	X	408	4	3	4	X	X	2	3	4	6	X	X
	X	2	4	4	6	X	X	409	4	3	4	X	X	4	3	5	6	X	X
	X	3	5	5	6	X	X	410	4	3	2	X	X	3	3	5	6	X	X
	X	5	6	6	6	X	X	411	4	3	2	X	X	3	4	5	6	X	X
	X	6	6	6	6	X	X	412	4	3	2	X	X	4	4	5	6	X	X
	X	1	3	6	6	X	X	413	4	3	2	X	X	4	5	5	6	X	X
	X	3	5	5	6	X	X	414	4	3	2	X	X	4	5	6	6	X	X
	X	5	6	6	6	X	X	415	4	3	2	X	X	5	5	6	6	X	X
	X	1	5	6	6	X	X	416	4	3	3	X	X	1	2	5	6	X	X
	X	4	2	4	6	X	X	417	4	3	3	X	X	1	3	4	6	X	X
	X	4	3	5	6	X	X	418	4	3	3	X	X	2	3	4	5	X	X
	X	3	3	5	5	X	X	419	4	3	3	X	X	2	3	4	6	X	X
	X	5	5	6	6	X	X	420	4	3	3	X	X	2	3	5	6	X	X
	X	6	6	6	6	4	1	421	4	3	3	X	X	3	3	5	6	X	X
	X	6	6	6	6	4	2	422	4	3	3	X	X	3	4	5	6	X	X
	X	2	3	5	6	X	X	423	4	3	3	X	X	4	4	5	6	X	X
	X	5	6	6	6	X	X	424	4	3	3	X	X	4	5	5	6	X	X
	X	2	3	5	6	X	X	425	4	3	3	X	X	4	6	6	6	X	X
	X	3	3	5	5	X	X	426	4	3	3	X	X	5	5	6	6	X	X
	X	4	5	5	6	X	X	427	4	3	4	X	X	2	3	5	6	X	X
	X	4	5	5	6	X	X	428	4	3	4	X	X	3	3	5	6	X	X
	X	1	2	5	6	X	X	429	4	3	4	X	X	3	3	6	6	X	X
	X	1	4	6	6	X	X	430	4	3	4	X	X	3	4	5	6	X	X
	X	1	3	4	6	X	X	431	4	3	4	X	X	4	5	5	6	X	X
	X	2	2	4	5	X	X	432	4	3	5	X	X	2	3	5	6	X	X
X	X	4	2	5	6	X	X	433	4	3	5	X	X	3	4	5	6	X	X
X	X	2	3	4	5	X	X	434	4	3	5	X	X	4	5	5	6	X	X
X	X	2	3	4	6	X	X	435	5	3	1	X	X	1	2	4	6	X	X
X	X	4	3	5	6	X	X	436	5	3	1	X	X	1	2	5	6	X	X
X	X	2	4	4	6	X	X	437	5	3	1	X	X	3	3	5	6	X	X
X	X	2	4	6	6	X	X	438	5	3	1	X	X	3	5	5	6	X	X
X	X	2	5	6	6	X	X	439	5	3	1	X	X	5	5	6	6	X	X
X	X	3	3	3	5	X	X	440	5	3	1	X	X	5	6	6	6	X	X
X	X	3	3	4	5	X	X	441	5	3	4	X	X	6	6	6	6	X	X
X	X	3	3	5	5	X	X	442	6	3	1	X	X	5	6	6	6	X	X
X	X	3	3	5	6	X	X	443	6	3	1	X	X	6	6	6	6	X	X
X	X	3	4	4	5	X	X	444	6	3	1	1	3	6	6	6	5	X	X
X	X	3	4	5	6	X	X	445	6	3	1	1	4	1	4	4	6	X	X
X	X	3	5	5	6	X	X	446	6	3	1	1	4	3	4	4	5	X	X
X	X	4	4	5	2	X	X	447	6	3	1		5	1	2	4	6	X	X
X	X	4	5	5	6	X	X	448	6	3	4	4	2	6	6	6	6	X	X
X	X	4	5	6	6	X	X	449	6	3	1	6	1	6	6	6	6	X	X
X	X	5	5	6	6	X	X	450	6	3	1	6	2	6	6	6	6	X	X
X	X	5	6	6	6	X	X	451	6	3	1	7	3	6	6	6	6	X	X
X	X	6	6	6	6	X	X	452	6	3	1	7	4	6	6	6	6	X	X
X	X	4	5	6	6	X	X	453	6	3	1	8		6	6	6	6	X	X
[illegible]	3	3	3	3	5	X	X	454	6	3	1	8	4	1	2	4	6	X	X
3	1	2	2	4	5	X	X	455	6	3	1	8	5	1	2	4	6	X	X
3	1	6	6	6	6	X	X	456	6	3	1	8	5	5	6	6	6	X	X

Terrain Factor Family	Terrain Factor	Unit of Measure	Class Ranges 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	OL	SM	SP	GP		
	Depth of Thaw	In.	0-24	24-46	>46					
Surface Geometry	Slope	Deg	0-3	3-6	6-12	12-26.5	>26.5			
	Terrain Approach	Deg	<100	100-145	145-150	150-165	165-180	180-200	200-210	210->240
	Step Height	In	0-12	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1, 3, 6, & 10 in. in diameter	Ft	0-5	5-10	10-20	20-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg	<145	145-155	155-165	165->180				
	Water Depth	Ft	3-6	6-10						

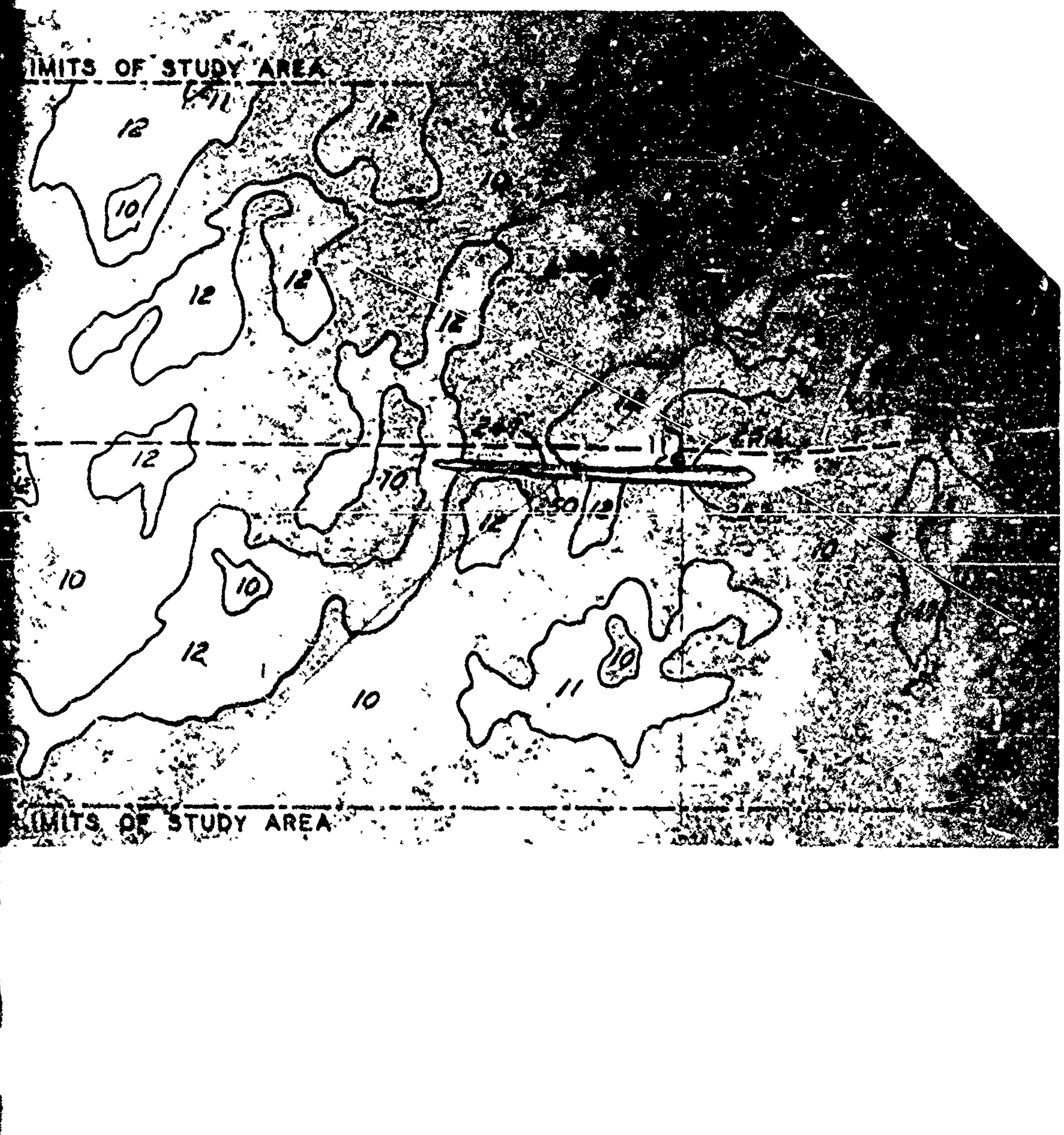


KEY

▲ SURFACE CONDITION SAMPLE SITE

● SURFACE GEOMETRY SAMPLE SITE

NOTE SEE FIG 2 FOR INDEX OF AREA COVERED



TERRAIN TYPE MAP
SEGMENT C

SCALE IN FEET

500 0 500

LEGEND

Terrain Unit*	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (in.) 1	3	6	10	Hydro Geom: Contact App Angle	Hydro Geom: Water Depth
~~1~~	1	1	1	X	X	1	3	4	6	X	X
~~2~~	1	1	1	X	X	1	4	4	6	X	X
~~3~~	1	1	1	X	X	1	4	6	6	X	X
~~4~~	1	1	1	X	X	2	3	4	6	X	X
~~5~~	1	1	1	X	X	2	4	4	5	X	X
~~6~~	1	1	1	X	X	2	4	4	6	X	X
~~7~~	1	1	1	X	X	2	4	5	6	X	X
~~8~~	1	1	1	X	X	2	4	6	6	X	X
~~9~~	1	1	1	X	X	2	5	5	6	X	X
~~10~~	1	2	1	X	X	1	2	5	6	X	X
~~11~~	1	2	1	X	X	2	4	5	6	X	X
~~12~~	1	2	1	X	X	2	4	6	6	X	X
~~13~~	1	2	1	X	X	3	5	6	6	X	X
~~14~~	1	2	1	X	X	4	6	6	6	X	X
~~15~~	1	2	1	X	X	1	2	3	5	X	X
~~16~~	1	3	1	X	X	1	2	3	6	X	X
~~17~~	1	3	1	X	X	1	2	4	5	X	X
~~18~~	1	3	1	X	X	1	2	4	6	X	X
~~19~~	1	3	1	X	X	1	2	5	6	X	X
~~20~~	1	3	1	X	X	1	3	4	6	X	X
~~21~~	1	3	1	X	X	1	3	6	6	X	X
~~22~~	1	3	1	X	X	1	4	6	6	X	X
~~23~~	1	3	1	X	X	2	2	4	5	X	X
~~24~~	1	3	1	X	X	2	3	3	6	X	X
~~25~~	1	3	1	X	X	2	3	4	5	X	X
~~26~~	1	3	1	X	X	2	3	4	6	X	X
~~27~~	1	3	1	X	X	2	3	5	6	X	X
~~28~~	1	3	1	X	X	2	4	4	5	X	X
~~29~~	1	3	1	X	X	2	4	4	6	X	X
~~30~~	1	3	1	X	X	2	4	5	6	X	X
31	1	3	1	X	X	2	4	6	5	X	X
~~32~~	1	3	1	X	X	2	5	5	6	X	X
~~33~~	1	3	1	X	X	2	5	6	6	X	X
~~34~~	1	3	1	X	X	3	3	3	3	X	X
~~35~~	1	3	1	X	X	3	3	4	5	X	X
~~36~~	1	3	1	X	X	3	3	5	5	X	X
~~37~~	1	3	1	X	X	3	[illegible]	5	6	X	X
~~38~~	1	3	1	X	X	[illegible]	3	[illegible]	6	X	X
39	1	3	1	X	X	3	[illegible]	5	6	X	X
~~40~~	1	3	1	X	X	3	5	[illegible]	6	X	X
~~41~~	1	3	1	X	X	3	5	6	6	X	X
~~42~~	1	3	1	X	X	4	4	5	6	X	X
43	1	3	1	X	X	4	4	6	6	X	X
44	1	3	1	X	X	5	5	6	6	X	X
45	1	3	1	X	X	5	5	6	6	X	X
46	1	3	1	X	X	5	6	6	6	X	X
~~47~~	1	3	1	X	X	6	6	6	6	X	X
~~48~~	1	3	1	[illegible]	4	1	2	3	5	X	X
~~49~~	1	3	1	2	1	2	3	3	6	X	X
~~50~~	1	3	1	3	1	1	2	4	5	X	X
~~51~~	1	3	1	4	2	2	5	6	6	X	X
~~52~~	1	3	1	4	3	3	3	3	3	X	X
~~53~~	1	3	1	6	2	1	2	3	5	X	X
~~54~~	1	3	1	6	2	1	2	5	6	X	X
~~55~~	1	3	1	6	2	3	3	5	6	X	X
~~56~~	1	3	1	6	2	3	5	6	6	X	X
~~57~~	1	3	1	6	4	1	2	3	5	X	X
~~58~~	1	3	1	6	5	2	3	4	5	X	X
~~59~~	1	3	1	7	2	2	3	3	6	X	X
60	1	3	1	7	2	3	3	4	5	X	X
~~61~~	1	3	[illegible]	8	1	1		5	6	X	X
~~62~~	1	3	1	8	2	2	3	3	6	X	X
~~63~~	1	3	1	8	2	2	5	6	6	X	X
~~64~~	1	3	1	[illegible]	3	3	5	6	6	X	X

Terrain Unit*	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (in.) 1	3	6	10	Hydro Geom: Contact App Angle	Hydro Geom: Water Depth
~~65~~	1	3	1	8	4	1	2	3	5	X	X
~~66~~	1	3		X	X	1	2	4	6	X	X
~~67~~	1	3	2	X	X	1	2	5	6	X	X
~~68~~	1	3	2	X	X	1	3	4	6	X	X
~~69~~	1	3	2	X	X	1	3	6	6	X	X
~~70~~	1	3	2	X	X	1	4	6	6	X	X
~~71~~	1	3	2	X	X	2	2	4	5	X	X
~~72~~	1	3	2	X	X	2	2	4	6	X	X
~~73~~	1	3	2	X	X	2	3	4	6	X	X
~~74~~	1	3	2	X	X	2	3	5	6	X	X
~~75~~	1	3	2	X	X	2	4	4	6	X	X
~~76~~	1	3	2	X	X	2	4	5	6	X	X
77	1	3	2	X	X	2	4	6	6	X	X
78	1	3	2	X	X	2	5	6	6	X	X
~~79~~	1	3	2	X	X	3	3	5	6	X	X
~~80~~	1	3	2	X	X	3	4	5	6	X	X
~~81~~	1	3	2	X	X	3	5	5	6	X	X
82	1	3	2	X	X	3	5	6	6	X	X
~~83~~	1	3	2	X	X	4	4	5	6	X	X
84	1	3	2	X	X	4	4	6	6	X	X
85	1	3	2	X	X	4	5	6	6	X	X
86	1	3	2	X	X	5	5	6	6	X	X
~~87~~	1	3	2	X	X	6	6	6	6	X	X
~~88~~	1	3	3	X	X	1	2	4	5	X	X
~~89~~	1	3	3	[illegible]	X	1	2	4	6	X	X
~~90~~	1	3	3	X	X	1	2	5	6	X	X
~~91~~	1	3	3	X	X	1	3	4	6	X	X
~~92~~	1	3	3	X	X	1	3	6	6	X	X
~~93~~	1	3	3	X	X	1	4	6	6	X	X
~~94~~	1	3	3	X	X	2	2	4	5	X	X
~~95~~	1	3	3	X	X	2	2	4	6	X	X
~~96~~	1	3	3	X	X	2	3	4	6	X	X
~~97~~	1	3	3	X	X	2	3	5	6	X	X
~~98~~	1	3	3	X	X	2	4	4	6	X	X
~~99~~	1	3	3	X	X	2	4	5	6	X	X
100	1	3	3	X	X	2	4	6	6	X	X
101	1	3	3	X	X	3	4	5	6	X	X
~~102~~	1	3	3	X	X	3	5	5	6	X	X
103	1	3	[illegible]	X	X	[illegible]	3	6	6	X	X
~~104~~	1	3	3	X	X	4	4	5	6	X	X
105	1	3	3	X	X	4	4	6	6	X	X
106	1	3	3	X	X	4	5	6	6	X	X
~~107~~	1	3	3	X	X	6	6	6	6	X	X
~~108~~	1	3	4	X	X	1	3	4	6	X	X
~~109~~	1	3	4	X	X	1	4	6	6	X	X
~~110~~	1	3	4	X	X	2	2	4	5	X	X
~~111~~	1	3	4	X	X	2	3	4	6	X	X
~~112~~	1	3	4	X	X	2	3	5	6	X	X
~~113~~	1	3	4	X	X	2	4	4	6	X	X
~~114~~	1	3	4	X	X	2	4	5	6	X	X
~~115~~	1	3	4	X	X	2	4	6	6	X	X
~~116~~	1	3	4	X	X	3	4	5	6	X	X
~~117~~	1	3	4	X	X	4	4	5	6	X	X
~~118~~	1	3	4	X	X	4	4	6	6	X	X
~~119~~	1	3	4	X	X	6	6	6	6	X	X
~~120~~	1	3	5	X	X	2	2	4	5	X	X
~~121~~	1	3	5	X	X	2	3	5	6	X	X
~~122~~	1	3	5	X	X	6	6	6	6	X	X
~~123~~	2	2	1	X	X	1	3	6	6	X	X
~~124~~	2	2	1	X	X	1	5	6	6	X	X
~~125~~	2	2	1	X	X	2	5	6	6	X	X
~~126~~	2	2	1	X	X	4	5	5	6	X	X
~~127~~	2	2	1	X	X	5	5	6	6	X	X
~~128~~	2	2	1	X	X	5	6	6	6	X	X

Terrain Unit*	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (in.) 1	3	6	10	Hydro Geom: Contact App Angle
129	2		1	X	X	6	6	6	6	X
~~130~~	2	2	2	X	X	1	5	6	6	X
~~131~~	2	2	2	X	X	4	5	5	6	X
~~132~~	2	2	3	X	X	5	6	6	6	X
133	3	1	1	X	X	6	6	6	6	X
134	3	1	2	X	X	6	6	6	6	X
~~135~~	3	2	1	X	X	1	3	6	6	X
~~136~~	3	2	1	X	X	1	5	6	6	X
~~137~~	3	2	1	X	X	2	4	4	6	X
~~138~~	3	2	1	X	X	2	5	6	6	X
~~139~~	3	2	1	X	X	3	3	4	5	X
~~140~~	3	2	1	X	X	3	5	5	6	X
141	3	2	1	X	X	4	5	6	6	X
~~142~~	3	2	1	X	X	4	6	6	6	X
~~143~~	3	2	1	X	X	5	6	6	6	X
~~144~~	3	2	2	X	X	1	5	6	6	X
~~145~~	3	2	2	X	X	2	4	4	6	X
~~146~~	3	2	2	X	X	3	5	5	6	X
~~147~~	3	2	2	X	X	5	6	6	6	X
148	3	2	2	X	X	6	6	6	6	X
~~149~~	3	2	3	X	X	1	5	6	6	X
~~150~~	3	2	3	X	X	3	5	5	6	X
~~151~~	3	2	3	X	X	5	6	6	6	X
~~152~~	3	2	4	X	X	1	5	6	6	X
~~153~~	3	3	1	X	X	2	2	4	6	X
~~154~~	3	3	1	X	X	2	3	5	6	X
~~155~~	3	3	1	X	X	3	3	5	5	X
156	3	3	1	X	X	5	5	6	6	X
157	3	3	X	X	X	6	6	6	6	4
~~158~~	3	3	X	X	X	6	6	6	6	4
159	3	3	2	X	X	2	3	5	6	X
160	3	3	2	X	X	5	6	6	6	X
~~161~~	3	3	3	X	X	2	3	5	6	X
~~162~~	3	3	3	X	X	3	3	5	5	X
~~163~~	3	3	3	X	X	4	5	5	5	X
~~164~~	3	3	4	X	X	4	5	5	6	X
~~165~~	4	3	1	X	X	1	2	5	6	X
~~166~~	4	3	1	X	X	1	2	6	6	X
~~167~~	4	3	1	X	X	1	3	4	6	X
~~168~~	4	3	1	X	X	2	2	4	5	X
~~169~~	4	3	1	X	X	2	2	5	6	X
~~170~~	4	3	1	X	X	2	3	4	5	X
~~171~~	4	3	1	X	X	2	3	4	6	X
~~172~~	4	3	1	X	X	2	3	5	6	X
~~173~~	4	3	1	X	X	2	4	4	6	X
~~174~~	4	3	1	X	X	2	4	6	6	X
~~175~~	4	3	1	X	X	2	5	6	6	X
~~176~~	4	3	1	X	X	3	3	3	5	X
~~177~~	4	3	1	X	X	3	3	4	5	X
~~178~~	4	3	1	X	X	3	3	5	5	X
~~179~~	4	3	1	X	X	3	3	5	6	X
~~180~~	4	3	1	X	X	3	4	4	5	X
~~181~~	4	3	1	X	X	3	4	5	6	X
~~182~~	4	3	1	X	X	3	5	5	6	X
~~183~~	4	3	1	X	X	4	4	5	6	X
~~184~~	4	3	1	X	X	4	5	5	6	X
~~185~~	4	3	1	X	X	4	5	6	6	X
~~186~~	4	3	1	X	X	5	5	6	6	X
~~187~~	4	3	1	X	X		[illegible]	6	6	X
~~188~~	4	3	1	X	X	6	6	[illegible]	6	X
~~189~~	4	3	2	X	X	4	5	6	[illegible]	X
~~190~~	4	3	1	2	3	3	3	3	5	X
~~191~~	4	3	1	3	1	2	[illegible]	4	5	X
~~192~~	4	3	1	3	1	6	6	6	6	X

*Each terrain unit represents a combination of numbers indicating the mapping classes (or absence) of the following factors: soil type, depth of thaw, slope, approach angle, step height, spacing of stem diameters ≥1, 3, 6, and 10 in., contact approach angle, and water depth. Mapping class ranges of each factor are shown to the right.

~~33~~ Unit not mapped

X Factor absent

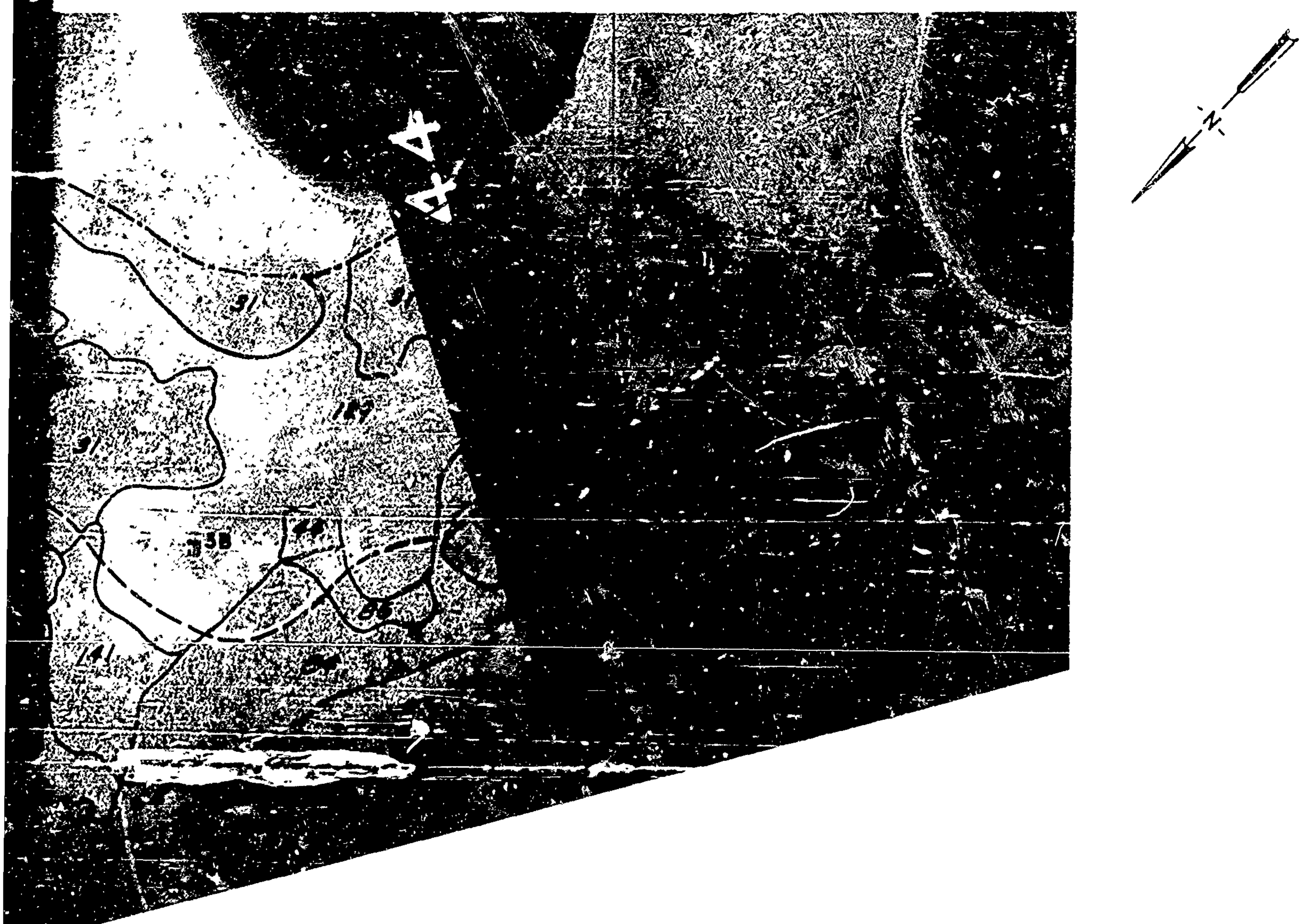
Geometry		Vegetation				Micro Geom			Surface Condition		Surface Geometry			Vegetation				Hydro Geom	
App Angle	Step Height	Stem Diam ≥ (In) 1	3	6	10	Contact App Angle	Water Depth	Terrain *Unit	Type	Depth of Thaw	Slope	App Angle	Step Height	Stem Diam ≥ (In) 1	3	6	10	Contact App	Water Depth
X	X	6	6	6	6	X	X	~~393~~	4	3	1	3	2	2	3	5	6	X	X
X	X	1	5	6	6	X	X	~~394~~	4	3	1	3	3	2	2	4	5	X	X
X	X	4	5	5	6	X	X	~~395~~	4	3	1	4	2	2	2	4	5	X	X
X	X	5	6	6	6	X	X	~~396~~	4	3	1	4	3	1	2	6	6	X	X
X	X	6	6	6	6	X	X	~~397~~	4	3	1	4	4	3	4	4	5	X	X
X	X	6	6	6	6	X	X	~~398~~	[illegible]	3	1	5	5	1	2	6	6	X	X
X	X	1	3	6	6	X	X	~~399~~	4	3	1	5	5	2	3	4	5	X	X
X	X	1	5	5	6	X	X	~~400~~	4	3	1	6	2	2	3	4	5	X	X
X	X	2	4	4	6	X	X	~~401~~	4	3	1	7	4	2	2	4	5	X	X
X	X	2	5	6	6	X	X	~~402~~	4	3	1	8	3	2	3	3	6	X	X
X	X	3	3	4	5	X	X	~~403~~	4	3	1	8	3	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~404~~	4	3	1	8	5	2	2	4	5	X	X
X	X	4	5	6	6	X	X	~~405~~	4	3	2	X	X	1	2	5	6	X	X
X	X	4	6	6	6	X	X	~~406~~	4	3	2	X	X	1	3	4	6	X	X
X	X	5	6	6	6	X	X	~~407~~	4	3	2	X	X	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~408~~	4	3	2	X	X	2	3	4	6	X	X
X	X	2	4	4	6	X	X	~~409~~	4	3	2	X	X	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~410~~	4	3	2	X	X	3	3	5	6	X	X
X	X	5	6	6	6	X	X	~~411~~	4	3	2	X	X	3	4	5	6	X	X
X	X	6	6	6	6	X	X	~~412~~	4	3	2	X	X	4	4	5	6	X	X
X	X	1	5	6	6	X	X	~~413~~	4	3	2	X	X	4	5	5	6	X	X
X	X	3	5	5	6	X	X	~~414~~	4	3	2	X	X	4	5	6	6	X	X
X	X	5	6	6	6	X	X	~~415~~	4	3	2	X	X	5	5	6	6	X	X
X	X	1	5	6	6	X	X	~~416~~	4	3	3	X	X	1	2	5	6	X	X
X	X	2	2	4	6	X	X	~~417~~	4	3	3	X	X	1	3	4	5	X	X
X	X	2	3	5	6	X	X	~~418~~	4	3	3	X	X	2	3	4	5	X	X
X	X	3	3	5	5	X	X	~~419~~	4	3	3	X	X	2	3	4	6	X	X
X	X	5	5	6	6	X	X	~~420~~	4	3	3	X	X	2	3	5	6	X	X
X	X	6	6	6	6	4	1	~~421~~	4	3	3	X	X	3	3	5	6	X	X
X	X	6	6	6	6	4	2	~~422~~	4	3	3	X	X	3	4	5	6	X	X
X	X	2	3	5	6	X	X	~~423~~	4	3	3	X	X	4	4	5	6	X	X
X	X	5	6	6	6	X	X	~~424~~	4	3	3	X	X	4	5	5	6	X	X
X	X	2	3	5	6	X	X	~~425~~	4	3	3	X	X	4	6	6	[illegible]	X	X
X	X	3	3	5	5	X	X	~~426~~	4	3	3	X	X	5	5	6	6	X	X
X	X	4	5	5	6	X	X	~~427~~	4	3	4	X	X	2	3	5	6	X	X
X	X	4	5	5	6	X	X	~~428~~	4	3	4	X	X	3	3	5	6	X	X
X	X	1	2	5	6	X	X	~~429~~	4	3	4	X	X	3	3	6	6	X	X
X	X	1	2	6	6	X	X	~~430~~	4	3	4	X	X	3	4	5	6	X	X
X	X	1	3	4	6	X	X	~~431~~	4	3	4	X	X	4	5	5	6	X	X
X	X	2	2	4	5	X	X	~~432~~	4	3	5	X	X	2	3	5	6	X	X
X	X	2		5	6	[illegible]	[illegible]	~~433~~	4	3	[illegible]	[illegible]	[illegible]		4	[illegible]	6	X	[illegible]
X	X	2	3	4	5	X	X	~~434~~	[illegible]	3	[illegible]			4	5	5	6	X	[illegible]
X	X	2	3	4	6	X	X	~~435~~	5	3	1	X	X	1	2	4	6	X	X
X	X	2	3	5	6	X	X	~~436~~	5	3	1	X	X	1	2	5	5	X	X
X	X	2	4	4	6	X	X	~~437~~	5	3	1	X	X	3	3	5	6	X	X
X	X	2	4	6	6	X	X	~~438~~	5	3	1	X	X	3	5	5	5	X	X
X	X	2	5	6	6	X	X	~~439~~	5	3	1	X	X	5	5	6	6	X	X
X	X	3	3	3	5	X	X	~~440~~	5	3	1	X	X	5	6	6	6	X	X
X	X	3	3	4	5	X	X	~~441~~	5	3	2	X	X	6	6	6	6	X	X
X	X	3	3	5	5	X	X	~~442~~	6	3	1	X	X	5	6	6	6	X	X
X	X	3	3	5	6	X	X	~~443~~	6	3	1	X	X	6	6	6	6	X	X
X	X	3	4	4	5	X	X	~~444~~	6	3	1	1	3	6	6	6	6	X	X
X	X	3	4	5	6	X	X	~~445~~	6	3	1	1	4	1	2	4	6	X	X
X	X	3	5	5	6	X	X	~~446~~	6	3	1	1	4	3	4	4	[illegible]	X	X
X	X	4	4	5	6	X	X	~~447~~	6	3	1	1	5	1	2	4	6	X	X
X	X	4	5	5	6	X	X	~~448~~	6	3	1	4	2	6	6	6	6	X	X
X	X	4	5	6	6	X	X	~~449~~	6	3	1	6	1	[illegible]	6	6	6	X	X
X	X	5	5	6	6	X	X	~~450~~	6	3	1	6	2	6	6	6	6	X	X
X	X	5	6	6	6	X	X	~~451~~	6	3	1	7	3	6	6	6	6	X	X
X	X	6	6	6	6	X	X	~~452~~	6	3	1	7	4	6	6	6	6	X	X
X	X	4	5	6	6	X	X	~~453~~	6	3	1	8	2	6	6	6	6	X	X
2	3	3	3	3	5	X	X	~~454~~	6	3	1	8	4	1	2	4	6	X	X
3	1	2	2	4	5	X	X	~~455~~	6	3	1	8	5	1	2	4	6	X	X
3	1	6	6	6	6	X	X	~~456~~	6	3	1	8	5	6	6	6	6	X	X

Terrain Factor Family	Terrain Factor	Unit of Measure	Class Ranges 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	CL	SM	SP	GP		
	Depth of Thaw	In.	0-24	24-42	>42					
Surface Geometry	Slope	Deg	0-3	3-6	6-12	12-26.5	>26.5			
	Terrain Approach	Deg	<100	100-125	125-150	150-165	165-180	180-200	200-250	210->220
	Step Height	In.	0-12	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1, 3, 6, & 10 in. in diameter	Ft	0-5	5-10	10-20	20-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg.	<145	145-155	155-165	165->180				
	Water Depth	Ft	3-6	6-10						

KEY

▼ HYDROLOGIC GEOMETRY SAMPLE SITE
▲ SURFACE CONDITION SAMPLE SITE
● SURFACE GEOMETRY SAMPLE SITE
■ VEGETATION SAMPLE SITE

NOTE: SEE FIG 2 FOR INDEX OF AREA COVERED



TERRAIN TYPE MAP
SEGMENT D

SCALE IN FEET

500 0 500

LEGEND

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geometry: Contact App Angle	Hydro Geometry: Water Depth
[illegible]	1	.		x	'	1	3	-	'	'	
[illegible]	1	1	1	x	x	1		.		x	x
[illegible]	1	'	1	x	x	1	4	'		x	x
[illegible]	1	1	1	x	x		3	4	6	x	x
[illegible]	1	1	1	x			4	4	'	x	x
[illegible]	1	1	1	x	x		.	4	'	x	x
[illegible]	1	1	1	x	'		4	5	'	x	x
[illegible]	'	'	'	x	x	.			'	x	x
[illegible]	'	'	'	x	x					x	x
[illegible]	1		1	x	x	1		5	6	x	x
45	'		1	x	x	.	4		'	x	x
[illegible]			1	x	x		4	6	6	x	x
[illegible]	'		1	x	x	3	5	6	6	x	x
[illegible]	'	.	1	x	x	4	6	6	6	x	x
[illegible]	'		1	x	x	1	.	3	5	x	x
[illegible]	1	3	1	x	x	1		3	6	x	x
[illegible]	1	3	1	x	x	1		4	5	x	x
[illegible]	1	3	1	x	x	1		4	6	x	x
[illegible]	1	3	'	x	x	1	.	5	6	x	x
[illegible]	1	3	1	x	x	1	3	4	6	x	x
[illegible]	'	3	1	x	x	1	3	6	6	x	x
[illegible]	'	3	1	x	x	1	4	6	6	x	x
[illegible]	1	3	1	x	x			4	5	x	x
[illegible]	1	3	1	x	x		3	3	6	x	x
[illegible]	'	3	1	x	x		3	4	5	x	x
[illegible]	'	3	1	x	x		3	4	6	x	x
[illegible]	1	3	1	x	x		3	'	.	x	x
[illegible]		3	1	x	x		4	4	5	x	x
[illegible]	1	3	1	x	x		.	4	6	x	x
[illegible]	'	3	1	x	x		4	.	6	x	x
31	'	3		x	x		4	6	6	x	x
[illegible]	1	3	1	x	x		5	5	6	x	x
[illegible]	1	3	1	x	x			4	6	x	x
[illegible]	1	3	1	x	x	3	3	3	'	x	x
[illegible]	.	3	1	x	x	3	3	4		x	x
[illegible]	'	3	1	x	x	3	3	'		x	x
[illegible]	1	3	1	x	x	3	3	5	6	x	x
[illegible]	1	3	'	x	x	3	3	6	6	x	x
[illegible]	1	3	1	x	x	3	4	5	6	x	x
[illegible]	1	3	1	x	x	3	5	5	6	x	x
[illegible]	1	3	1	x	x	3	5	6	6	x	x
[illegible]	1	3	1	x	x	4	4	5	6	x	x
[illegible]	1	3	1	x	x	4	4	6	5	x	x
[illegible]	1	3	1	x	x	4	5	6	6	x	x
[illegible]	1	3	1	x	x	5	5	6	6	x	x
[illegible]	1	3	1	x	x	5	6	6	6	x	x
[illegible]	1	3	1	x	x	6	6	6	6	x	x
[illegible]	1	3			4	1		3	5	x	x
[illegible]	1	3	1		'		3	3	4	x	x
[illegible]	1	3	1	3	1	1	.	4	5	x	x
[illegible]	1	'	1	.	.	4	5	6	6	x	x
[illegible]	'	'	1	.	3	1	1	3	3	x	x
[illegible]	'	'	1	'		1		'	'	x	x
[illegible]	'	'	1	6	.	1	.	5	6	x	x
[illegible]	1	1	1	6		3	'		6	x	x
[illegible]		3	1	6		3		4	6	x	x
[illegible]	1	1	1	'	4			3	'	x	x
[illegible]	1	1	1	6			3	4	6	x	x
[illegible]	1	1	1		.		3	3	'	x	x
[illegible]	1	1	1		.	1	3	.		x	x
[illegible]		1	1	6	1	1		5		x	x
[illegible]	1	1	1	'			1	3	6	x	x
[illegible]	1	1	1	x			'	6	6	x	x
[illegible]	1	1	1	'	3			6	6	x	x

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom Contact: App Angle	Hydro Geom: Water Depth
[illegible]	1	3	1	x	.	1		3	3	7	7
[illegible]	1	3		x	x	1	-	4	6	x	x
[illegible]	1	3		x	x	1		5	6	x	x
68	1	3		x	x	1	3	4	6	x	x
[illegible]	1	3		x	x	1	3	6	6	x	x
[illegible]	1	3		x	x	1	4	6	6	x	x
[illegible]	1	3	-	x	x			4	5	x	x
[illegible]	1	3	-	x	x			4	6	x	x
[illegible]	1	3		x	x		3	4	6	x	x
[illegible]	'	3	-	x	x	-	3	5	6	x	x
[illegible]	1	-		x	x		4	4	6	x	x
[illegible]	1	3		x	x	-	4	5	6	x	x
77	1	3	-	x	x	-	4	6	6	x	x
[illegible]	1	3	-	x	x	-	5	6	6	x	x
[illegible]	1	3	-	x	x	3	3	5	6	x	x
[illegible]	1	3		x	x	3	4	5	6	x	x
[illegible]	1	3	-	x	x	3	5	5	6	x	x
[illegible]	1	3	-	x	x	3	5	6	6	x	x
[illegible]	1	3	-	x	x	4	4	5	6	x	x
[illegible]	1	3	-	x	x	4	4	6	6	x	x
85	1	3	-	x	x	4	5	6	6	x	x
[illegible]	1	3	-	x	x	5	5	6	6	x	x
[illegible]	1	3	-	'	x	6	6	6	6	x	x
[illegible]	1	3	3	x	x	1	-	4	5	x	x
[illegible]	1	3	3	x	x	1	-	-	6	x	x
[illegible]	1	3	3	x	x	1	-	5	6	x	x
91	1	3	3	x	x	1	3	4	6	x	x
[illegible]	1	3	3	x	x	1	3	6	6	x	x
[illegible]	1	3	3	x	x	1	4	5	6	x	x
[illegible]	1	3	3	x	x		4	4	5	x	x
[illegible]	1	3	3	x	x	-	-	4	6	x	x
[illegible]	1	3	3	x	x	-	3	4	6	x	x
[illegible]	1	3	3	x	x	-	3	5	6	x	x
[illegible]	1	3	3	x	x	-	-	4	6	x	x
[illegible]	1	3	3	x	x	-	4	5	6	x	x
100	1	3	3	x	x	-	4	6	6	x	x
[illegible]	1	3	3	x	x	3	4	5	6	x	x
[illegible]	1	3	3	x	x	3	5	5	6	x	x
[illegible]	1	3	3	x	x	3	5	6	6	x	x
[illegible]	1	3	3	x	x	4	4	5	6	x	x
[illegible]	1	3	3	x	x	4	4	6	6	x	x
106	1	3	3	x	x	4	5	6	6	x	x
[illegible]	1	3	3	x	x	5	6	6	6	x	x
[illegible]	1	3	4	x	x	1	3	-	6	x	x
[illegible]	1	3	4	x	x	1	4	6	6	x	x
[illegible]	1	3	4	x	x	-	-	4	5	x	x
[illegible]	1	3	4	x	x	-	3	4	6	x	x
[illegible]	1	3	4	x	x	-	3	5	6	x	x
[illegible]	1	3	4	x	x	-	4	-	6	x	x
[illegible]	1	3	4	x	x	-	4	5	6	x	x
[illegible]	1	3	4	x	x	-	4	6	6	x	x
[illegible]	1	3	4	x	x	3	-	5	6	x	x
[illegible]	1	3	4	x	x	4	4	5	6	x	x
[illegible]	1	3	4	x	x	4	4	6	6	x	x
[illegible]	1	3	4	x	x	6	6	6	6	x	x
[illegible]	1	3	5	x	x	-	-	4	5	x	x
[illegible]	1	3	5	x	x	-	3	5	6	x	x
[illegible]	1	3	5	x	x	6	6	6	6	x	x
[illegible]		-	1	x	x	1	3	6	6	x	x
[illegible]	-	-	1	x	x	1	5	6	6	x	x
[illegible]		-	1	x	x	-	5	6	6	x	x
[illegible]		-	1	x	x	4	5	5	6	x	x
[illegible]		-	1	x	x	5	5	6	6	x	x
[illegible]		-	1	x	x	5	6	6	6	x	x

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10
129			1	x	x	6	6	6	6
[illegible]	-			x	x	1	5	6	6
[illegible]	-		-	x	x	-	5	5	6
[illegible]	-	-	3	x	x	-	6	6	6
[illegible]	3	1	1	x	x	6	6	6	6
[illegible]	3	-	-	x	x	6	6	6	6
[illegible]	3		1	x	x	1	3	6	6
[illegible]	3		1	x	x	1	5	6	6
[illegible]	3	-	1	x	x	-	4	4	6
133	3		-	x	x		5	6	6
[illegible]	3	-	1	x	x	3	3	4	5
[illegible]	3		1	x	x	3	5	5	6
[illegible]	3	-	1	x	x	'	'	5	6
[illegible]	3		1	x	x	4	6	-	6
[illegible]	1	-		x	x	5	6	6	6
[illegible]	3			x	x	1	5	6	6
[illegible]	3	-	-	x	x	-	4	4	6
[illegible]	3	-	-	x	x	3	5	5	6
147	3	-	-	x	x	5	6	5	6
[illegible]	3	-	-	x	x	6	6	6	6
[illegible]	3	-	3	x	x	1	5	6	6
[illegible]	3	-	3	x	x	3	5	5	6
151	3	-	3	x	x	5	6	6	6
[illegible]	3	-	4	x	'	1	5	6	6
[illegible]	3	'	1	x	x	-	-	4	6
[illegible]	3	3	1	x	x		3	5	6
[illegible]	3	3	1	x	x	3	3	5	5
[illegible]	3	3	1	x	x	5	5	5	6
157	3	'	x	x	x	6	6	6	6
158	3	3	x	x	x	5	6	6	6
[illegible]	-	3	-	x	x	-	3	5	6
[illegible]	3	3	-	x	x	5	6	6	6
[illegible]	3	3	3	x	x	-	3	5	6
[illegible]	3	3	3	x	x	3	3	5	5
[illegible]	3	3	3	x	x	4	5	5	6
[illegible]	3	3	4	x	x	4	5	5	6
[illegible]	'	3	1	x	x	1	-	5	6
[illegible]	'	3	'	'	'	'		4	4
167	4	3	1	x	x	1	3	4	6
[illegible]	4	3	1	x	x		'	4	5
[illegible]	4	3	1	x	x	-	-	5	6
[illegible]	4	3	1	x	x	-	3	4	5
[illegible]	4	3	1	x	x	-	3	4	6
[illegible]	4	3	1	x	x	-	3	5	6
[illegible]	4	3	1	x	x	-	4	4	6
[illegible]	4	3	1	x	x	-	4	6	6
[illegible]	4	3	1	x	x	4	5	6	6
[illegible]	4	3	1	x	x	3	3	3	5
[illegible]	4	3	1	x	x	3	3	4	5
[illegible]	4	3	1	x	x	3	3	-	5
[illegible]	4	3	1	x	x	3	3	5	6
[illegible]	4	3	1	x	x	3	4	4	-
[illegible]	4	3	1	x	x	3	4	5	6
[illegible]	4	3	1	x	x	3	5	5	6
[illegible]	4	3	1	x	x	4	4	5	6
[illegible]	4	3	1	x	x	4	5	5	6
[illegible]	4	3	1	x	x	4	5	6	6
[illegible]	4	3	1	x	x	5	5	6	6
[illegible]	'	3	1	x	x	5	6	6	6
[illegible]	4	3	1	x	x	6	6	6	6
[illegible]	4	3	-	x	x	6	5	6	6
[illegible]	4	3	1	x	3	3	3	3	5
[illegible]	4	3	1	3	1	-	-	4	5
[illegible]	4	3	1	3	1	6	6	5	6

*Ma[illegible] e a [illegible] en exerts [illegible] ere indicating the mapping classes (or absence) of the following factors: soil type, depth [illegible] spacing of stem diameters 2, 3, 6, and 10 in., contact approach angle, and water depth. Mann[illegible] factor [illegible] right.

[illegible]

[illegible]

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e Geometry		Vegetation				Hydro Geom Contact			Surface Condition		Surface Geometry			Vegetation				Hydro Geom Contact	
App Angle	Step Height	Stem Diam ≥ (In) 1	3	6	10	App Angle	Water Depth	Terrain Unit	Type	Depth of Thaw	Slope	App Angle	Step Height	Stem Diam ≥ (In) 1	3	6	10	App	Water Depth
X	X	[illegible]	6	6	6	X	X	~~393~~	4	3	1	3	2	2	3	5	6	X	X
X	X	1	5	6	6	X	X	~~394~~	4	3	1	3	3	2	2	4	5	X	X
X	X	4	5	5	6	X	X	~~395~~	4	3	1	4	2	2	2	4	5	X	X
X	X	5	6	6	6	X	X	~~396~~	4	3	1	4	3	1	2	6	6	X	X
X	X	6	6	6	6	X	X	~~397~~	4	3	1	4	4	3	4	4	5	X	X
X	X	6	6	6	6	X	X	~~398~~	4	3	1	5	5	1	2	6	6	X	X
X	X	1	3	6	6	X	X	~~399~~	4	3	1	5	5	2	3	4	5	X	X
X	X	1	[illegible]	6	6	X	X	~~400~~	4	3	1	6	2		3	4	5	X	X
X	X	2	4	4	6	X	X	~~401~~	4	3	1	7	4		2	4	5	X	X
X	X		5	6	6	X	X	~~402~~	4	3	1	8	3	2	3	3	6	X	X
X	X	3	3	4	5	X	X	~~403~~	4	3	1	8	3	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~404~~	4	3	1	8	5	2	2	4	5	X	X
X	X	4	5	6	6	X	X	~~405~~	4	3	2	X	X	1	2	5	6	X	X
X	X	2	6	6	6	X	X	~~406~~	4	3	2	X	X	1	3	4	6	X	X
X	X	5	6	6	6	X	X	~~407~~	4	3	2	X	X	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~408~~	4	3	2	X	X	2	3	4	6	X	X
X	X	2	4	4	6	X	X	~~409~~	4	3	2	X	X	2	3	5	6	X	X
X	X	3	3	5	6	X	X	~~410~~	4	3	2	X	X	3	3	5	6	X	X
X	X	5	6	6	6	X	X	~~411~~	4	3	2	X	X	3	4	5	6	X	X
X	X	6	6	6	6	X	X	~~412~~	4	3	2	X	X	4	4	5	6	X	X
X	X	1	5	6	6	X	X	~~413~~	4	3	2	X	X	4	5	5	6	X	X
X	X	3		5	6	X	X	~~414~~		3	2	X	X	4	5	6	6	X	X
X	X	5	6	6	6	X	X	~~415~~	4	3	2	X 4	X	5	5	6	6	X	X
X	X	1	5	5	6	X	X	416	4	3	3	X	X	1	2	5	6	X	X
X	X	2	2	4	6	X	X	~~417~~	4	3	3	X	X	1	[illegible]	[illegible]	6	X	X
X	X	2	3	5	6	X	X	~~418~~	4	3	3	X	X	2	3	4	5	X	X
X	X	3	3	5	[illegible]	X	X	~~419~~	4	3	3	X	X	2	3	4	6	X	X
X	X	5	5	6	[illegible]	X	X	~~420~~	4	3	3	X	X	2	3	5	6	X	X
X	X	6	6	6	6	4	1	~~421~~	4	3	3	X	X	3	3	5	6	X	X
X	X	6	6	6	6	4	2	~~422~~	4	3	3	X	X	3	4	5	6	X	X
X	X	2	3	5	6	X	X	~~423~~	4	3	3	X	X	4	4	5	6	X	X
X	X	5	6	6	6	X	X	~~424~~	4	3	3	X	X	4	5	5	6	X	X
X	X	2	3	5	6	X	X	~~425~~	4	3	3	X	X	4	6	6	6	X	X
X	X	3	3	5	5	X	X	~~426~~	4	3	3	X	X	5	5	6	6	X	X
X	X	4	5	5	6	X	X	~~427~~	4	3	4	X	X	2	3	5	6	X	X
X	X	4	5	5	6	X	X	~~428~~	4	3	4	X	X	3	3	5	6	X	X
X	X	1	2	5	6	X	X	~~429~~	4	3	4	X	X	3	3	6	5	X	X
X	X	1	2	6	6	X	X	~~430~~	4	3	5	X	X	3	4	5	6	X	X
X	X	1	3	4	6	X	X	~~431~~	4	3	4	X	X	4	5	5	6	X	X
X	X	2	2	4	5	X	X	~~432~~	4	3	5	X	X	2	3	5	6	X	X
X	X	2	2	5	6	X	X	~~433~~	4	3	5	X	X	3	4	5	6	X	X
X	X	2	3	4	5	X	X	~~434~~	4	3	5	X	X	4	5	5	6	X	X
X	X	2	3	4	6	X	X	~~435~~	5	3	2	X	X	1	2	4	6	X	X
X	X	2	3	5	6	X	X	~~436~~	5	3	1	X	X	1	2	5	6	X	X
X	X	2	4	4	6	X	X	~~437~~	5	3	1	X	X	3	3	5	6	X	X
X	X	2	4	6	6	X	X	~~438~~	5	3	1	X	X	3	5	5	6	X	X
X	X	2	5	6	6	X	X	~~439~~	5	3	1	X	X	5	5	5	6	X	X
X	X	3	3	3	5	X	X	~~440~~	5	3	1	X	X	5	6	5	6	X	X
X	X	3	3	4	5	X	X	~~441~~	5	3	2	X	X	6	6	6	6	X	X
X	X	3	3	5		4	[illegible]	[illegible]	[illegible]	3	1	X	X	[illegible]	[illegible]	[illegible]	[illegible]	X	X
X	X	3	3	5	6	X	X	~~443~~	6	3	1	X	X	6	6	6	6	X	X
X	X	3	4	4	5	X	X	~~444~~	6	3	1	1	3	6	6	6	6	X	X
X	X	3	4	5	6	X	X	~~445~~	6	3	1	1	4	1	2	4	6	X	X
X	X	3	5	5	6	X	X	~~446~~	6	3	1	1	4	3	4	4	5	X	X
X	X	4	4	5	6	X	X	~~447~~	6	3	1	1	5	1	2	4	6	X	X
X	X	4	5	5	6	X	X	~~448~~	6	3	1	4	2	6	6	6	6	X	X
X	X	4	5	6	6	X	X	~~449~~	6	3	1	6	1	6	6	6	6	X	X
X	X	5	5	6	6	X	X	~~450~~	6	3	1	6	2	6	6	6	6	X	X
X	X	5	6	6	6	X	X	~~451~~	6	3	1	7	3	6	6	6	6	X	X
X	X	6	6	6	6	X	X	~~452~~	6	3	1	7	4	6	6	6	6	X	X
X	X	4	5	6	6	X	X	~~453~~	6	3	1	8	2	6	6	6	6	X	X
2	3	3	3	3	5	X	X	~~454~~	6	3	1	8	4	1	2	4	6	X	[illegible]
[illegible]	1	2	2	4	5	X	X	~~455~~	6	3	1	8	5	1	2	4	6	X	X
[illegible]	1	6	6	6	6	X	X	~~456~~	6	3	1	8	5	6	6	6	6	X	X

Terrain Factor Family	Terrain Factor	Unit of Measure	Class Ranges 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	OL	SM	SP	GP		
	Depth of Thaw	In	0-<24	24-42	>42					
Surface Geometry	Slope	Deg	0-3	3-6	6-12	12-<45	>45			
	Terrain Approach	Deg	<100	100-125	125-150	150-165	165-180	180-<00	200-<10	210->220
	Step Height	In	0-12	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1,3,6, & 10 in. in diameter	Ft	0-5	5-10	10-20	20-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg	<145	145-155	155-165	165->180				
	Water Depth	Ft	3-6	6-10						

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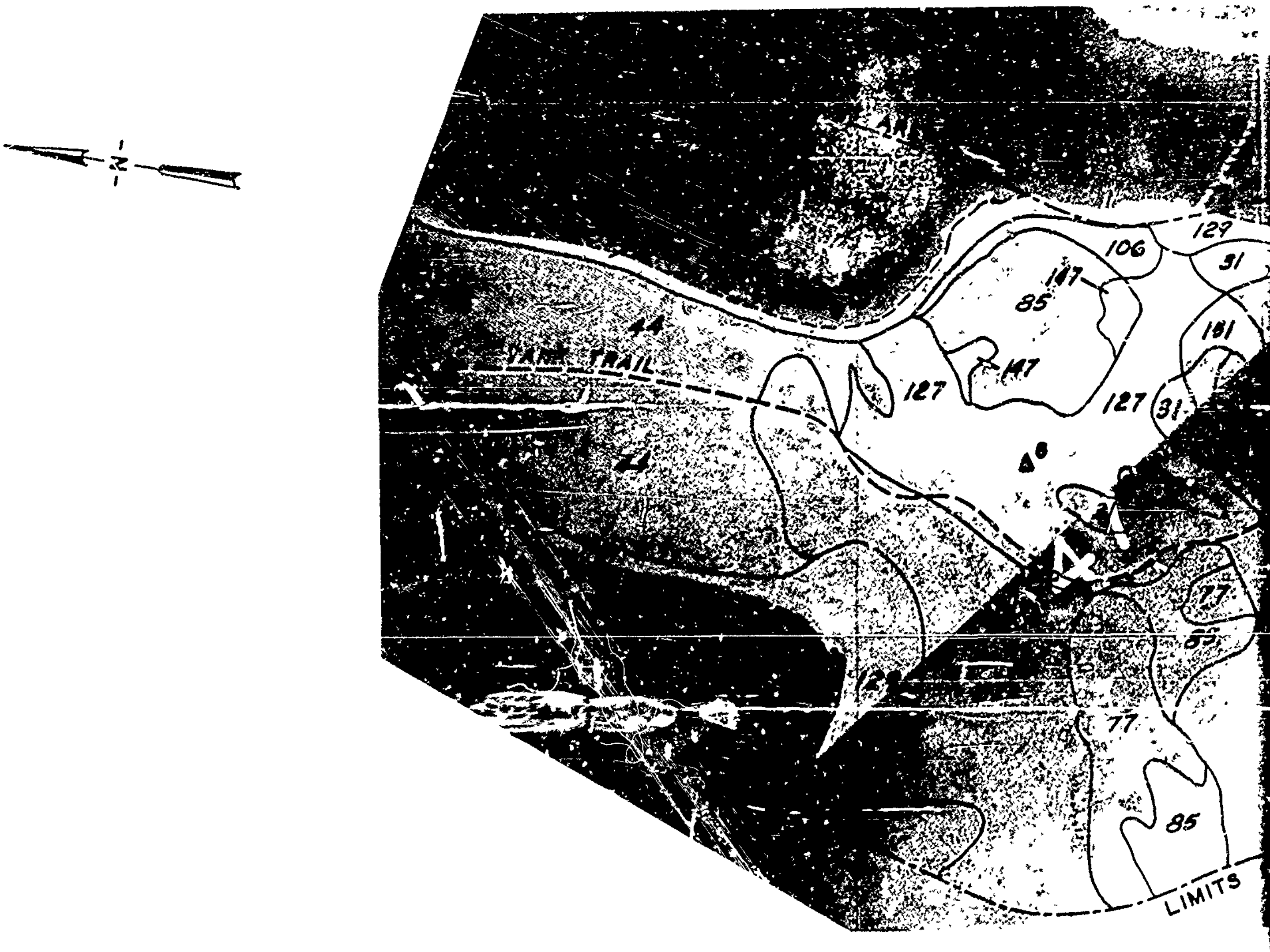


KEY

▼ HYDROLOGIC GEOMETRY SAMPLE SITE
▲ SURFACE CONDITION SAMPLE SITE
● SURFACE GEOMETRY SAMPLE SITE

NOTE SEE FIG. 2 FOR INDEX OF AREA COVERED

TERRAIN TYPE MAP
SEGMENT E

SCALE IN FEET

500 0 500

PLATE

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 2	3	6	10	Hydro Geom: Contact App Angle	Hydro Geom: Water Depth
1	1	1	1	X	X	1	3	4	6	X	X
2	1	1	1	X	X	1	2	2	6	X	X
3	1	1	1	X		1	4	6	6	X	X
4	1	1	1	X	X	2	3	4	6	X	X
5	1	1	1	X	X	2	4	4	5	X	X
6	1	1	1	X	X		4	4	6	X	X
7	1	1	1	X	X		4	5	6	X	X
8	1	1	1	X	X	2	4	6	6	X	X
9	1	1	1	X	X		5	5	6	X	X
10	1		1	X	X	1	2	5	6	X	X
11	1	2	1	X	X	2	2	5	6	X	X
12	1	2	1	X	X	2	4	6	6	X	X
13	1		1	X	X	3	5	6	6	X	X
14	1		1	X	X	4	6	5	6	X	X
15	1		1	X	X	1	2	[illegible]	5	X	X
16	1	3	1	X	X	1	2	3	6	X	X
17	1	3	1	X	X	1	2	4	5	X	X
18	1	3	1	X	X	1	2	2	5	X	X
19	1	3	1	X	X	1	2	5	6	X	X
20	1	3	1	X	X	1	3	4	6	X	X
21	1	3	1	X	X	1	3	6	6	X	X
22	1	3	1	X	X	1	4	6	6	X	X
23	1	3	1	X	X	2	2	4	5	[illegible]	X
24	1		1	X	X	2	3	3	6	X	X
25		3	1	X	X	2	3	4	5	X	X
26	1	3	1	X	X	2	3	4	6	X	X
27	1	3	1	X	X	2	3	5	6	X	X
28	1	3	1	X	X	2	4	4	5	X	X
29	1	3	1	X	X		4	4	6	X	X
30	1	3	1	X	X		4	5	6	X	X
31	1	3	1	X	X	2	4	6	6	X	X
32	1	3	1	X	X		5	5	6	X	X
33	1	3	1	X	X	2	5	6	6	X	X
34	1	3	1	X	X	3	3	3	3	X	X
35	1	3	1	X	X	3	3	4	5	X	X
36	1	3	1	X	X	3	3	5	5	X	X
37	1	3	1	X	X	3	3	5	6	X	X
38	1	3	1	X	X	3	3	6	6	X	X
39	1	3	1	X	X	3	4	5	6	X	X
40	1	3	1	X	X	3	5	5	6	X	X
41	1	3	1	X	X	3	5	6	6	X	X
42	1	3	1	X	X	4	4	5	6	X	X
43	1	3	1	X	X	4	4	6	6	X	X
44	1	3	1	X	X	4	5	6	6	X	X
45	1	3	1	X	X	5	5	6	6	X	X
46	1	3	1	X	X	5	6	6	6	X	X
47	1	3	1	X	X	2	2	6	6	X	X
48	1	3	1		4	1		3	5	X	X
49	1	3	1		1		3	3	6	X	X
50	1	3	1	3	1	1	2	4	5	X	X
51	1	3	1	4	2	2	5	6	6	X	X
52	1	3	1	4	3	3	3	3	3	X	X
53	1	3	1	6		1		3	5	X	X
54	1	3	1	6	2	1	2	5	6	X	X
55	1	3	1	6	2	3	5	5	6	X	X
56	1	3	1	6		3	5	6	6	X	X
57	1	3	1	6	4	1	2	3	5	X	X
58	1	3	1	6	5	2	3	4	6	X	X
59	1	3	1		2		3	3	6	X	X
60	1	3	1	[illegible]	2	3	3	4	5	X	X
61	1	3	1	8	1	1		5	6	X	X
62	1	3	1	8	2		3	3	6	X	X
63	1	3	1	8	2			6	5	X	X
64	1	3	1	8	3	3	5	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 2	3	6	10	Hydro Geom: Contact App Angle	Hydro Geom: Water Depth
65	1	[illegible]	1	[illegible]	[illegible]	1	2	3	[illegible]	X	X
66	1	3		X	X	1	2	2	6	X	X
67	1	3	2	X	X	2		5	6	X	X
68	1	3	2	X	X	2	[illegible]	4	6	X	X
69	1	3		X	X	1	3	6	6	X	X
70	1	3	2	X	X	1	4	6	6	X	X
71	1	3		X	X			2	5	X	X
72	1	3	2	X	X	2	2	4	6	X	X
73	1	3	2	X	X	2	3	4	6	X	X
74	1	3	2	X	X	2	3		6	X	X
75	1	3	2	X	X	2	4	4	6	X	X
76	1	3	2	X	X	2	4	5	6	X	X
77	1	3	2	X	X	2	4	6	6	X	X
78	1	3	2	X	X	2	5	6	6	X	X
79	1	3	2	X	X	3	3	5	6	X	X
80	1	3	2	X	X	3	4	[illegible]	6	X	X
81	1	3	2	X	X	3	5	5	6	X	X
82	1	3	2	X	X	3	5	6	6	X	X
83	1	3	2	X	X	4	4	5	6	X	X
84	1	3	2	X	X	4	4	6	6	X	X
85	1	3	2	X	X	4	5	6	6	X	X
86	1	3	2	X	X	5	5	6	6	X	X
87	1	3	2	X	X	6	6	6	6	X	X
88	1	3	3	X	X	1	2	4	5	X	X
89	1	3	3	X	X	1	2	2	6	X	X
90	1	3	3	X	X	1	2	5	6	X	X
91	1	3	3	X	X	1	3	4	6	X	X
92	1	3	3	X	X	1	3	[illegible]	6	X	X
93	1	3	3	X	X	1	4	6	6	X	X
94	1	3	3	X	X	2	2	4	5	X	X
95	1	3	3	X	X	2	2	4	6	X	X
96	1	3	3	X	X	2	3	4	6	X	X
97	1	3	3	X	X	2	3	5	6	X	X
98	1	3	3	X	X	2	4	4	6	X	X
99	1	3	3	X	X	2	4	5	6	X	X
100	1	3	3	X	X	2	2	6	6	X	X
101	1	3	3	X	X	3	4	5	6	X	X
102	1	3	3	X	X	3	5	5	6	X	X
103	1	3	3	X	X	3	5	6	6	X	X
104	1	3	3	X	X	4	4	5	6	X	X
105	1	3	3	X	X	4	4	6	6	X	X
106	1	3	3	X	X	4	5	6	6	X	X
107	1	3	3	X	X	6	6	6	6	X	X
108	1	3	4	X	X	1	3	4	6	X	X
109	1	3	4	X	X	1	4	6	6	X	X
110	1	3	4	X	X	2	2	4	5	X	X
111	1	3	4	X	X	2	3	4	6	X	X
112	1	3	4	X	X	2	3	5	[illegible]	X	X
113	1	3	4	X	X	2	4	4	6	X	X
114	1	3	4	X	X	2	4	5	6	X	X
115	1	3	4	X	X	2	4	6	6	X	X
116	1	3	4	X	X	3	4	5	6	X	X
117	1	3	4	X	X	4	4	5	6	X	X
118	1	3	4	X	X	4	4	6	6	X	X
119	1	3	4	X	X	6	6	6	6	X	X
120	1	3	5	X	X	2	2	4	5	X	X
121	1	3	5	X	X	2	3	5	6	X	X
122	1	3	[illegible]	X	X	6	6	6	6	X	X
123			1	X	X	1	3	6	6	X	X
124	2	2	1	X	X	1	5	6	6	X	X
125	2	2	1	X	X	2	5	6	6	X	X
126	2	2	1	X	X	4	5	5	6	X	X
127	2	2	1	X	X	5	5	6	6	X	X
128		2	1	X	X	5	6	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 2	3	6
129			1	X	X	[illegible]	6	[illegible]
130	2	2		X	X	1	5	6
131	2	2		X	X	4	5	5
132	2	2	3	X	X	5	6	6
133	3	1	1	X	X	6	6	6
134	3	1		X	X	6	6	6
135	3		1	X	X	1	3	6
136	3		1	X	X	1	5	6
137	3	2	1	X	X		4	4
138	3		1	X	X		5	6
139	3	2	1	X	X	3	3	2
140	3	2	1	X	X	3	5	[illegible]
141	3	2	1	X	X	4	5	6
142	3		1	X	X	4	6	6
143	3	2	1	X	X	5	6	6
144	3			X	X	1	5	6
145	3	2	2	X	X	2	2	4
146	3	2	2	X	X	3	5	5
147	3	2		X	X	5	6	6
148	3	2	2	X	X	6	6	6
149	3	2	3	X	X	1	5	6
150	3	2	3	X	X	3	5	5
151	3	2	3	X	X	5	6	6
152	3	2	4	X	X	1	5	6
153	3	3	1	X	X	2	2	4
154	3	3	1	X	X	2	3	5
155	3	3	1	X	X	3	3	5
156	3	3	1	X	X	5	5	6
157	3	3	X	X	X	6	6	6
158	3	3	X	X	X	6	6	6
159	3	3	2	X	X	2	3	5
160	3	3	2	X	X	5	6	6
161	3	3	3	X	X	2	3	5
162	3	3	3	X	X	3	3	5
163	3	3	3	X	X	4	5	5
164	3	3	4	X	X	4	5	5
165	[illegible]	3	1	X	X	1	2	5
166	4	3	[illegible]	X	X	1	2	6
167	4	3	1	X	X	1	3	4
168	4	3	1	X	X	2	2	4
169	4	3	1	X	X	2	2	5
170	4	3	1	X	X	2	3	4
171	4	3	1	X	X	2	3	4
172	4	3	1	X	X		3	5
173	4	3	1	X	X	2	4	4
174	4	3	1	X	X	2	4	6
175	4	3	1	X	X	2	5	6
176	4	3	1	X	X	3	3	3
177	4	3	1	X	X	3	3	4
178	4	3	1	X	X	3	3	5
179	4	3	1	X	X	3	3	5
180	4	3	1	X	X	3	4	4
181	4	3	1	X	X	3	4	5
182	4	3	1	X	X	3	5	[illegible]
183	4	3	1	X	X	4	4	5
184	4	3	1	X	X	4	[illegible]	5
185	4	3	1	X	X	4	5	6
186	4	3	1	X	X	5	5	6
187	[illegible]	[illegible]	1	X	X	5	6	6
188	4	3	1	X	X	6	6	6
189	4	3		X	X	4	5	6
190	4	3	1	2	3	[illegible]	3	3
191	4	3	1	[illegible]	1	2		2
192	2	3	1	[illegible]	1	6	6	6

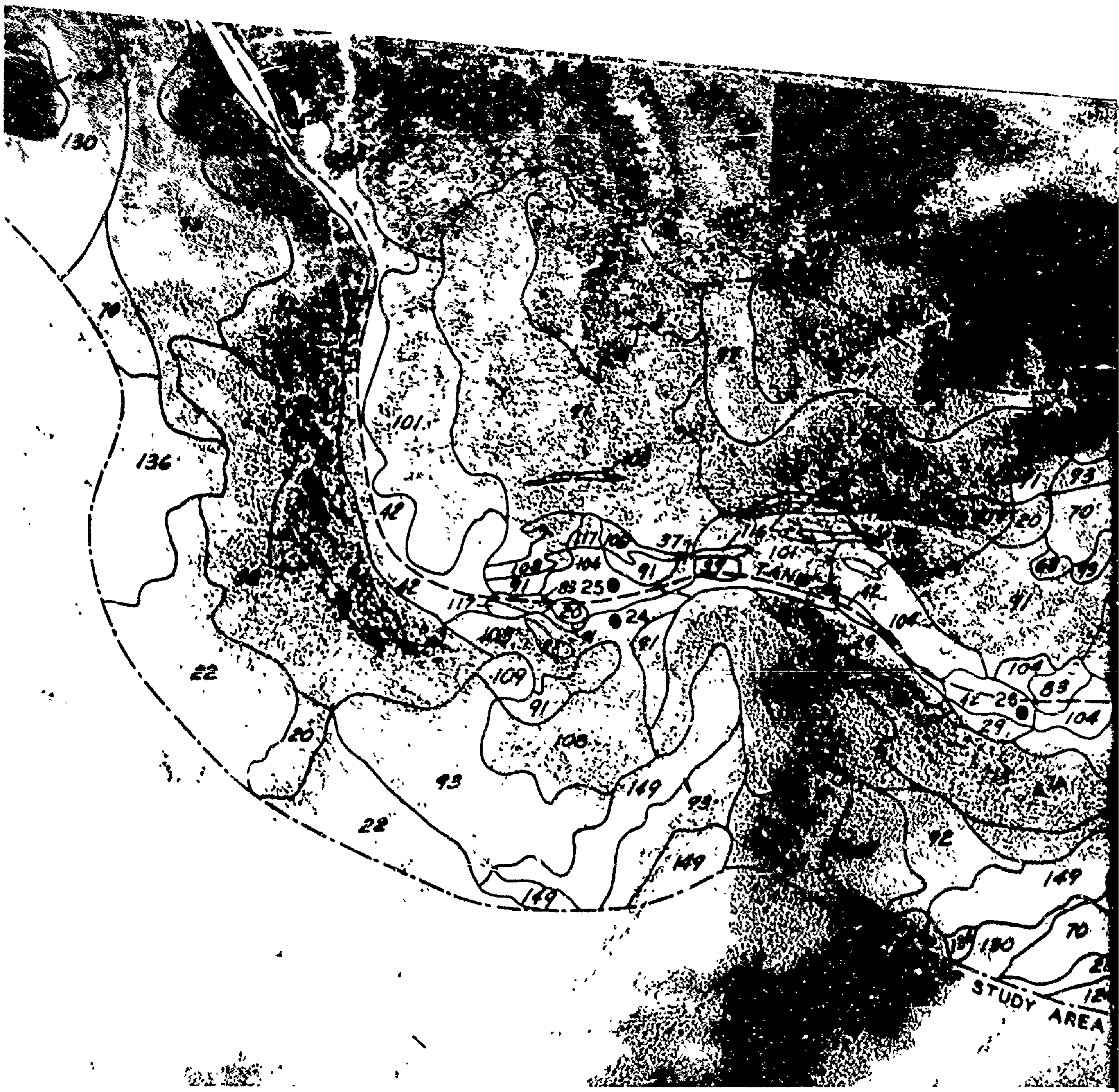
*Terrain unit represents a combination of numbers indicating mapping classes (or absence) of the following factors: soil type, depth of thaw, slope, approach angle, step height, spacing of stem diameters 2, 3, 6, and 10 in., contact approach angle, and water depth. Mapping classes ranges of each factor are shown to the right.

** Unit not mapped.

X Factor absent.

Geometry		Vegetation				Hydro Geom			Surface Condition		Surface Geometry			Vegetation				Hydro Geom	
App Angle	Step Height	Stem Diam ≥ (In) 1	3	6	10	Contact App Angle	Water Depth	Terrain Unit	Type	Depth of Thaw	Slope	App Angle	Step Height	Stem Diam ≥ (In) 1	3	6	10	Contact App	Water Depth
X	X	[illegible]	[illegible]	[illegible]	6	X	X	~~393~~	4	3	1	3	2		3	5	6	X	X
X	X	1	[illegible]	6	6	X	X	~~394~~	4	[illegible]	1	2	3	2	2	4	5	X	X
X	X	4	5	5	6	X	X	~~395~~	4	3	1	4	2	2	2	4	5	X	X
X	X	5	6	6	6	X	X	~~396~~	4	3	1	4	3	1		4	4	X	X
X	X	6	6	6	6	X	X	~~397~~	4	3	1	4	4	3	4	4	5	X	X
X	X	6	6	6	6	X	X	~~398~~	4	3	1	5	5	1	2	6	6	X	X
X	X	1	3	6	6	X	X	~~399~~	4	3	2	5	5	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~400~~	4	3	1	6	2	2	3	4	5	X	X
X	X	2	4	4	6	X	X	~~401~~	4	3	1	7	4	2	2	4	5	X	X
X	X	2	5	6	6	X	X	~~402~~	4	3	1	8	3	2	3	3	6	X	X
X	X	3	3	4	5	X	X	~~403~~	4	3	1	8	3	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~404~~	4	3	1	8	5	2	2	4	5	X	X
X	X	4	5	6	6	X	X	~~405~~	4	3	2	X	X	1	2	5	6	X	X
X	X	4	6	6	6	X	X	~~406~~	4	3	2	X	X	1	3	4	6	X	X
X	X	5	6	6	6	X	X	~~407~~	4	3	2	X	X	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~408~~	4	3	2	X	X	2	3	4	6	X	X
X	X	2	4	4	6	X	X	~~409~~	4	3	2	X	X	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~410~~	4	3	2	X	X	3	3	5	6	X	X
X	X	5	6	6	6	X	X	~~411~~	4	3	2	X	X	3	4	5	6	X	X
X	X	6	6	6	6	X	X	~~412~~	4	3	2	X	X	4	4	5	6	X	X
X	X	1	5	6	6	X	X	~~413~~	4	3	2	X	X	4	5	5	6	X	X
X	X	3	5	5	6	X	X	~~414~~	4	3	2	X	X	4	5	6	6	X	X
X	X	5	6	6	6	X	X	~~415~~	4	3	2	X	X	5	5	6	6	X	X
X	X	1	5	6	6	X	X	~~416~~	4	3	3	X	X	1	2	5	6	X	X
X	X	2	2	4	6	X	X	~~417~~	4	3	3	X	X	1	3	4	6	X	X
X	X	2	3	5	6	X	X	~~418~~	4	3	3	X	X	2	3	4	5	X	X
X	X	3	3	5	5	X	X	419	4	3	3	X	X	2	3	4	6	X	X
X	X	5	5	6	6	X	X	~~420~~	4	3	3	X	X	2	3	5	6	X	X
X	X	6	6	6	6		1	~~421~~	4	3	3	X	X	3	3	5	6	X	X
X	X	6	6	6	6	4	2	~~422~~	4	3	3	X	X	3	4	5	6	X	X
X	X	2	3	5	6	X	X	~~423~~	4	3	3	X	X	4	4	5	6	X	X
X	X	5	6	6	6	X	X	~~424~~	4	3	3	X	X	4	5	5	6	X	X
X	X	2	3	5	6	X	X	~~425~~	4	3	3	X	X	4	6	6	6	X	X
X	X	3	3	5	5	X	X	~~426~~	4	3	3	X	X	5	5	6	6	X	X
X	X	4	5	5	6	X	X	~~427~~	4	3	4	X	X	2	3	5	6	X	X
X	X	4	5	5	6	X	X	~~428~~	4	3	4	X	X	3	3	5	6	X	X
X	X	1	2	5	6	X	X	~~429~~	4	3	4	X	X	3	3	6	6	X	X
X	X	1	2	6	6	X	X	~~430~~	4	3	4	X	X	3	4	5	6	X	X
X	X	1	3	4	6	X	X	~~431~~	4	3	4	X	X	4	5	5	6	X	X
X	X	2	2	4	5	X	X	~~432~~	4	3	5	X	X	2	3	5	6	X	X
X	X	2	2	5	6	X	X	~~433~~	4	3	5	X	X	3	4	5	6	X	X
X	X	2	3	4	5	X	X	~~434~~	4	3	5	X	X	4	5	5	6	X	X
X	X	2	3	4	6	X	X	~~435~~	5	3	1	X	X	1	2	4	6	X	X
X	X	2	3	5	6	X	X	~~436~~	5	3	1	X	X	1	2	5	6	X	X
X	X	2	4	4	6	X	X	~~437~~	5	3	1	X	X	3	3	5	6	X	X
X	X	2	4	6	6	X	X	~~438~~	5	3	1	X	X	3	5	5	6	X	X
X	X	2	5	6	6	X	X	~~439~~	5	3	1	X	X	5	5	6	6	X	X
X	X	3	3	3	5	X	X	~~440~~	5	3	1	X	X	5	6	6	6	X	X
X	X	3	3	4	5	X	X	~~441~~	5	3	2	X	X	6	6	6	6	X	X
X	X	3	3	5	5	X	X	~~442~~	6	3	1	X	X	5	6	6	6	X	X
X	X	3	3	5	6	X	X	~~443~~	6	3	1	X	X	6	6	6	6	X	X
X	X	3	4	4	5	X	X	~~444~~	6	3	1	1	3	6	6	6	6	X	X
X	X	3	4	5	6	X	X	~~445~~	6	3	1	1	4	1		4	6	X	X
X	X	3	5	5	6	X	X	~~446~~	6	3	1	1	4	3	4	4	5	X	X
X	X	4	4	5	6	X	X	~~447~~	6	3	1	1	5	1	2	4	6	X	X
X	X	4	5	5	6	X	X	~~448~~	6	3	1	4	2	6	6	6	6	X	X
X	X	4	5	6	5	X	X	~~449~~	6	3	1	6	1	6	6	6	6	X	X
X	X	5	5	6	6	X	X	~~450~~	6	3	1	6	4	6	6	6	6	X	X
X	X	5	6	6	6	X	X	~~451~~	6	3	1	7	3	6	6	6	6	X	X
X	X	6	6	6	6	X	X	~~452~~	6	3	1	7	4	6	6	6	6	X	X
X	X	4	5	6	6	X	X	~~453~~	6	3	1	8	2	6	6	6	6	X	X
4	3	3	3	3	5	X	X	~~454~~	6	3	1	8	4	1		4	6	X	X
3	1			4	5	X	X	~~455~~	6	3	1	8	5	1	2	4	6	X	X
3	1	6	6	6	6	X	X	~~456~~	6	3	1	8	5		6	2	6	X	X

Terrain Factor Family	Terrain Factor	Unit of Measure	Range 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	[illegible]	SM	SP	GP		
	Depth of Thaw	In	0-24	24-48	>48					
Surface Geometry	Slope	Deg	3	3-6	6-16	[illegible]	[illegible]			
	Terrain Approach	Deg	<100	100-145	145-150	150-165	165-180	180-[illegible]	[illegible]	[illegible]
	Step Height	In	0-1	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1, 3, 6, & 10 in. in diameter	Ft	0-5	5-10	10-[illegible]	[illegible]-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg	<145	145-155	155-165	165->180				
	Water Depth	Ft	3-6	6-10						

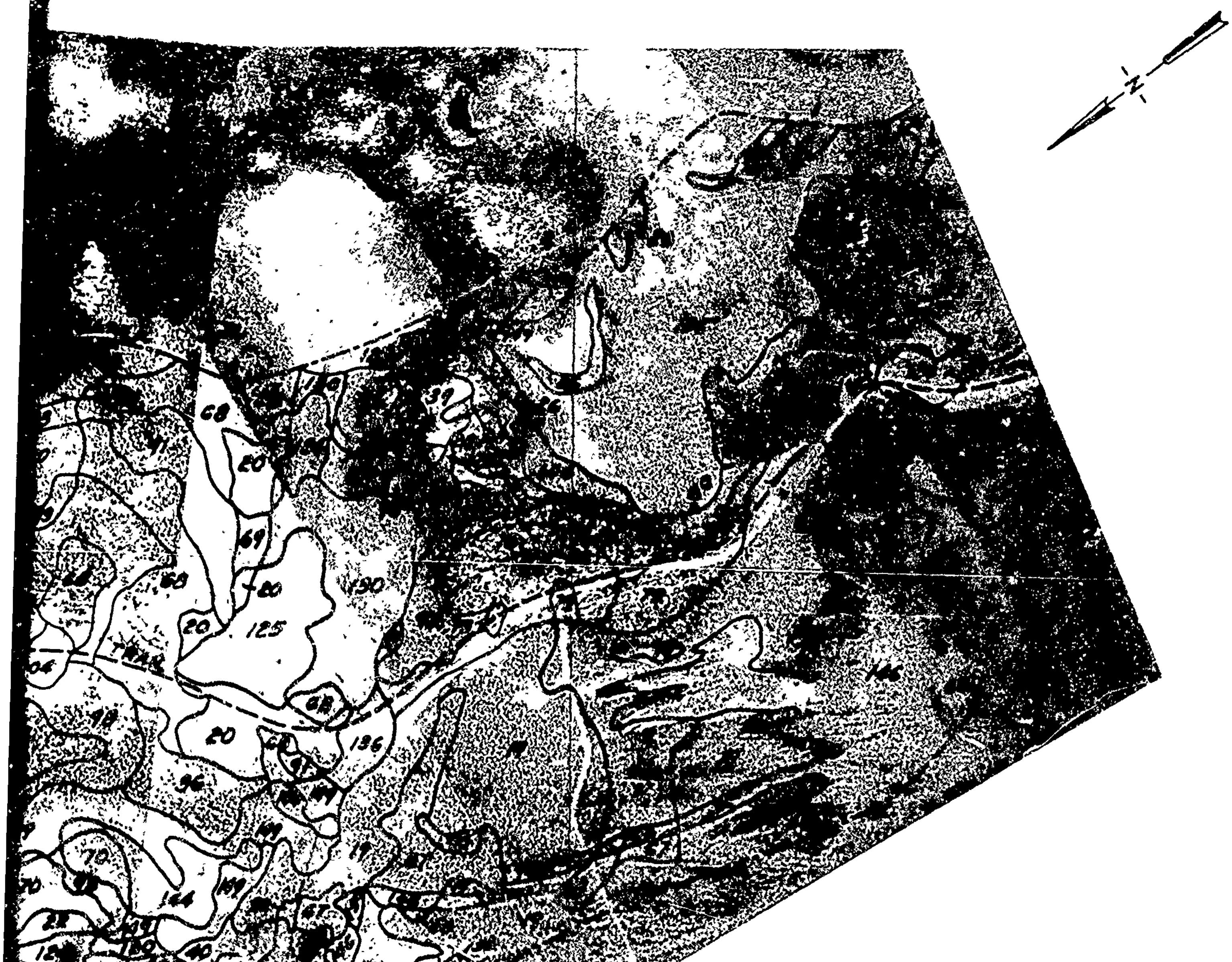


KEY

▲ SURFACE CONDITION SAMPLE SITE

● SURFACE GEOMETRY SAMPLE SITE

NOTE SEE FIG 2 FOR INDEX OF AREA COVERED



TERRAIN TYPE MAP
SEGMENT F

SCALE IN FEET

500 0 500

PLATE

5

L E G E N D

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom Contact: App Angle	Water Depth
~~1~~	1	1	1	X	X	1	3	4	6	X	X
~~2~~	1	1	1	X	X	1	4	4	6	X	X
~~3~~	1	1	1	X	X	1	4	6	6	X	X
~~4~~	1	1	1	X	X	2	3	4	6	X	X
~~5~~	1	1	1	X	X	2	4	4	5	X	X
~~6~~	1	1	1	X	X	2	4	4	6	X	X
~~7~~	1	1	1	X	X	2	4	5	6	X	X
~~8~~	1	1	1	X	X	2	4	6	6	X	X
~~9~~	1	1	1	X	X	2	5	5	6	X	X
~~10~~	1	2	1	X	X	1	2	5	6	X	X
~~11~~	1	2	1	X	X	2	4	5	6	X	X
~~12~~	1	2	1	X	X	2	4	5	6	X	X
~~13~~	1	2	1	X	X	3	5	6	6	X	X
~~14~~	1	2	1	X	X	4	6	6	6	X	X
~~15~~	1	2	1	X	X	1	2	3	5	X	X
~~16~~	1	3	1	X	X	1	2	3	6	X	X
~~17~~	1	3	1	X	X	1	2	4	5	X	X
~~18~~	1	3	1	X	X	1	2	4	6	X	X
19	1	3	1	X	X	1	2	5	6	X	X
~~20~~	1	3	1	X	X	1	3	4	6	X	X
~~21~~	1	3	1	X	X	1	3	6	6	X	X
~~22~~	1	3	1	X	X	1	4	6	6	X	X
~~23~~	1	3	1	X	X	2	2	4	5	X	X
~~24~~	1	3	1	X	X	2	3	3	6	X	X
~~25~~	1	3	1	X	X	2	3	4	5	X	X
26	1	3	1	X	X	2	3	4	6	X	X
~~27~~	1	3	1	X	X	2	3	5	6	X	X
28	1	3	1	X	X	2	4	4	5	X	X
29	1	3	1	X	X	2	4	4	6	X	X
30	1	3	1	X	X	2	4	5	6	X	X
31	1	3	1	X	X	2	4	6	6	X	X
~~32~~	1	3	1	X	X	2	5	5	6	X	X
33	1	3	1	X	X	2	5	6	6	X	X
~~34~~	1	3	1	X	X	3	3	3	3	X	X
~~35~~	1	3	1	X	X	3	3	4	5	X	X
~~36~~	1	3	1	X	X	3	3	5	5	X	X
~~37~~	1	3	1	X	X	3	3	5	6	X	X
~~38~~	1	3	1	X	X	3	3	6	6	X	X
~~39~~	1	3	1	X	X	3	4	5	6	X	X
40	1	3	1	X	X	3	5	5	6	X	X
~~41~~	1	3	1	X	X	3	5	6	6	X	X
~~42~~	1	3	1	X	X	4	4	5	6	X	X
43	1	3	1	X	X	4	4	6	6	X	X
~~44~~	1	3	1	X	X	4	5	6	6	X	X
~~45~~	1	3	1	X	X	5	5	6	6	X	X
~~46~~	1	3	1	X	X	5	6	6	6	X	X
~~47~~	1	3	1	X	X	6	6	6	6	X	X
~~48~~	1	3	1	1	4	1	2	3	5	X	X
~~49~~	1	3	1	2	1	2	3	3	6	X	X
50	1	3	1	3	1	1	2	4	5	X	X
~~51~~	1	3	1	4	2	2	5	6	6	X	X
~~52~~	1	3	1	4	3	3	3	3	3	X	X
~~53~~	1	3	1	6	2	1	2	3	5	X	X
~~54~~	1	3	1	6	2	1	2	5	6	X	X
~~55~~	1	3	1	6		3	5	5	6	X	X
~~56~~	1	3	1	6	2	3	5	6	6	X	X
~~57~~	1	3	1	6	4	1	2	3	5	X	X
~~58~~	1	3	1	6	5	2	3	4	6	X	X
~~59~~	1	3	1	7	2		3	3	6	X	X
~~60~~	1	3	1	7	2	3	1	2	5	X	X
~~61~~	1	3	1	8	1	1		5	6	X	X
~~62~~	1	3	1	8	2	2	3	3	6	X	X
~~63~~	1	3	1	8	2		5	6	6	X	X
~~64~~	1	3	1	8	1	3	5	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App. Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom Contact: App Angle	Water Depth
~~65~~	1	3	1	8	4	1	2	3	5	X	X
~~66~~	1	3	2	X	X	1	2	4	6	X	X
~~67~~	1	3	2	X	X	1	2	5	6	X	X
68	1	3	2	X	X	1	3	4	6	X	X
69	1	3	2	X	X	1	3	6	6	X	X
~~70~~	1	3	2	X	X	1	4	6	6	X	X
~~71~~	1	3	2	X	X	2	2	4	5	X	X
~~72~~	1	3	2	X	X	2	2	4	6	X	X
73	1	3	2	X	X	2	3	[illegible]	6	X	X
~~74~~	1	3	2	X	X	2	3	5	6	X	X
~~75~~	1	3	2	[illegible]	X	2	4	4	6	X	[illegible]
76	1	3	2	X	X	2	4	5	6	X	X
77	1	3	2	X	X	2	4	6	6	X	X
78	1	3	2	X	X	2	5	6	6	X	X
~~79~~	1	3	2	X	X	3	3	5	6	X	X
80	1	3	2	X	X	3	4	5	6	X	X
~~81~~	1	3	2	X	X	3	5	5	6	X	X
~~82~~	1	3	2	X	X	3	5	6	6	X	X
~~83~~	1	3	2	X	X	4	4	5	6	X	X
84	1	3	2	X	X	4	4	6	6	X	X
~~85~~	1	3	2	X	X	4	5	6	6	X	X
~~86~~	1	3	2	X	X	5	5	6	6	X	X
~~87~~	1	3	2	X	X	6	6	6	6	X	X
88	1	3	3	X	X	1	2	4	5	X	X
~~89~~	1	3	3	X	X	1	2	4	6	X	X
~~90~~	1	3	3	X	X	1	2	5	6	X	X
~~91~~	1	3	3	X	X	1	3	4	6	X	X
~~92~~	1	3	3	X	X	1	3	6	6	X	X
~~93~~	1	3	3	X	X	1	4	6	6	X	X
~~94~~	1	3	3	X	X	2	2	4	5	X	X
~~95~~	1	3	3	X	X	2	2	4	6	X	X
96	1	3	3	X	X	2	3	4	6	X	X
~~97~~	1	3	3	X	X	2	3	5	6	X	X
~~98~~	1	3	3	X	X	2	4	4	6	X	X
99	1	3	3	X	X	2	4	5	6	X	X
100	1	3	3	X	X	2	4	6	6	X	X
101	1	3	3	X	X	3	4	5	6	X	X
102	1	3	3	X	X	3	5	5	6	X	X
~~103~~	1	3	3	X	X	3	5	6	6	X	X
~~104~~	1	3	3	X	X	4	4	5	6	X	X
105	1	3	3	X	X	4	4	6	6	X	X
~~106~~	1	3	3	X	X	4	5	6	6	X	X
~~107~~	1	3	3	X	X	6	6	6	6	X	X
~~108~~	1	3	4	X	X	1	3	4	6	X	X
~~109~~	1	3	4	X	X	1	4	6	6	X	X
~~110~~	1	3	4	X	X	2	2	4	5	X	X
111	1	3	4	X	X	2	3	4	6	X	X
~~112~~	1	3	4	X	X	2	3	5	6	X	X
~~113~~	1	3	4	X	X	2	4	4	6	X	X
114	1	3	4	X	X	2	4	5	6	X	X
115	1	3	4	X	X	2	4	6	6	X	X
~~116~~	1	3	4	X	X	3	4	5	6	X	X
~~117~~	1	3	4	X	X	4	4	5	6	X	X
118	1	3	4	X	X	4	4	6	6	X	X
~~119~~	1	3	4	X	X	6	6	6	6	X	X
~~120~~	1	3	5	X	X	2	2	4	5	X	X
~~121~~	1	3	5	X	X	2	3	5	6	X	X
~~122~~	1	3	5	X	X	6	6	6	6	X	X
~~123~~	2	2	1	X	X	1	3	6	6	X	X
124	2	2	1	X	X	1	5	6	6	X	X
~~125~~		2	1	X	X	2	3	6	6	X	X
~~126~~		2	1	X	X	4	5	5	6	X	X
~~127~~	2	2	1	X	X	5	5	6	6	X	X
~~128~~		2	1	X	X	5	6	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Contact App Angle
129	2	2	1	X	X	6	6	6	6	X
~~130~~	2	2	2	X	X	1	5	6	6	X
~~131~~	2	2	2	X	X	4	5	5	6	X
~~132~~	2	2	3	X	X	5	6	6	6	X
133	3	1	1	X	X	6	6	6	6	X
~~134~~	3	1	2	X	X	6	6	6	6	X
~~135~~	3	2	1	X	X	1	3	6	6	X
136	3	2	1	X	X	1	5	6	6	X
~~137~~	3	2	1	X	X	2	4	4	6	X
~~138~~	3	2	1	X	X	2	5	6	6	X
139	3	2	1	X	X	3	3	[illegible]	5	X
~~140~~	3	2	1	X	X	3	5	5	6	X
~~141~~	3	2	1	X	X	4	5	6	6	X
~~142~~	3	2	1	X	X	4	6	6	6	X
~~143~~	3	2	1	X	X	5	6	6	6	X
144	3	2	2	X	X	1	5	6	6	X
~~145~~	3	2	2	X	X	2	4	4	6	X
146	3	2	2	X	X	3	5	5	6	X
~~147~~	3	2	2	X	X	5	6	6	6	X
~~148~~	3	2	2	X	X	6	6	6	6	X
149	3	2	3	X	X	1	5	6	6	X
~~150~~	3	2	3	X	X	3	5	5	6	X
151	3	2	3	X	X	5	6	6	6	X
152	3	2	4	X	X	1	5	6	6	X
~~153~~	3	3	1	X	X	2	2	4	6	X
~~154~~	3	3	1	X	X	2	3	5	6	X
~~155~~	3	3	1	X	X	3	3	5	5	X
~~156~~	3	3	1	X	X	5	5	6	6	X
~~157~~	3	3	X	X	X	6	6	6	6	4
158	3	3	X	X	X	6	6	6	6	4
~~159~~	3	3	2	X	X	2	3	5	6	X
~~160~~	3	3	2	X	X	5	6	6	6	X
~~161~~	3	3	3	X	X	2	3	3	6	X
~~162~~	3	3	3	X	X	3	3	5	5	X
~~163~~	3	3	3	X	X	4	5	5	6	X
~~164~~	3	3	4	X	X	4	5	5	6	X
~~165~~	4	3	1	X	X	1	2	5	6	X
~~166~~	4	3	1	X	X	1	2	6	6	X
~~167~~	4	3	1	X	X	1	3	4	6	X
~~168~~	4	3	1	X	X	2	2	4	5	X
~~169~~	4	3	1	X	X	2	2	5	6	X
~~170~~	4	3	1	X	X	2	3	4	5	X
~~171~~	4	3	1	X	X	2	3	4	6	X
~~172~~	4	3	1	X	X	2	3	5	6	X
~~173~~	4	3	1	X	X	2	4	4	6	X
~~174~~	4	3	1	X	X	2	4	6	6	X
~~175~~	4	3	1	X	X	2	5	6	6	X
~~176~~	4	3	1	X	X	3	3	3	5	X
~~177~~	4	3	1	X	X	3	3	[illegible]	5	X
~~178~~	4	3	1	X	X	3	3	5	5	X
~~179~~	4	3	1	X	X	3	3	5	6	X
~~180~~	4	3	1	X	X	3	4	4	5	X
~~181~~	4	3	1	X	X	3	4	5	6	X
~~182~~	4	3	1	X	X	3	5	5	6	X
~~183~~	4	3	1	X	X	4	4	5	6	X
~~184~~	4	3	1	X	X	4	5	5	6	X
~~185~~	4	3	1	X	X	4	5	6	6	X
~~186~~	4	3	1	X	X	5	5	6	6	X
~~187~~	4	3	1	X	X	5	6	6	6	X
~~188~~	4	3	1	X	X	6	6	6	6	X
~~189~~	4	3	2	X	X	4	5	6	6	X
~~190~~	4	3	1	2	3	3	3	3	5	X
~~191~~	4	3	1	3	1	2	2	4	5	X
~~192~~	4	3	1	3	1	6	6	6	6	X

*Each terrain unit represents a combination of numbers indicating the mapping classes (or absence) of the following factors: soil type, depth of thaw, slope, approach angle, step height, spacing of stem diameters ≥1, 3, 6, and 10 in., contact approach angle, and water depth. Mapping class ranges of each factor are shown to the right.

+++ Unit not mapped

X Factor absent

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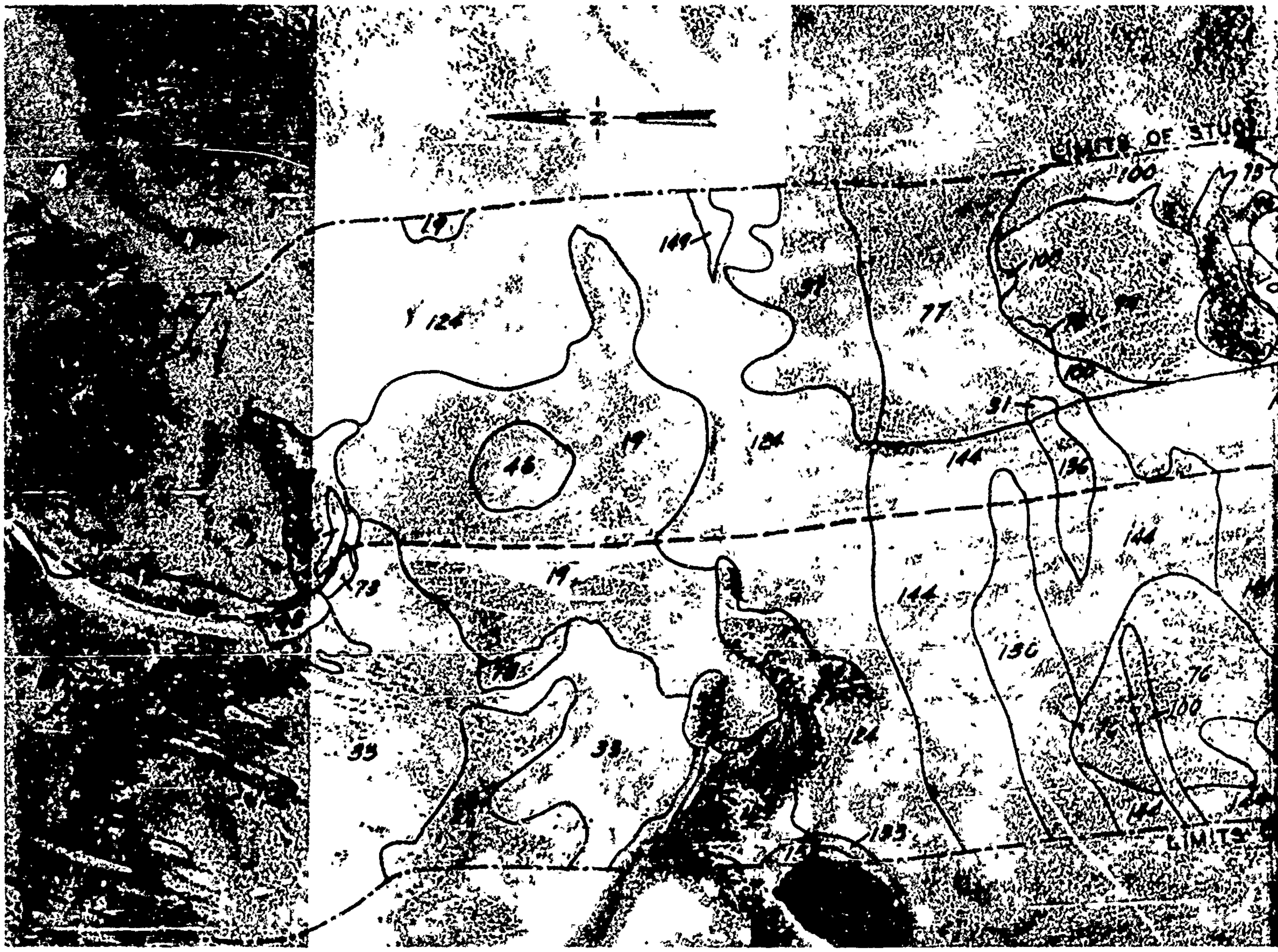
Geometry		Vegetation				Hydro Geom			Surface Condition		Surface Geometry			Vegetation				Hydro Geom	
App. Angle	Step Height	Stem Diam ≥ (In.) 1	3	6	10	Contact App Angle	Water Depth	Terrain Unit	Type	Depth of Thaw	Slope	App. Angle	Step Height	Stem Diam ≥ (In.) 1	3	6	10	Contact App.	Water Depth
X	X	6	6	6	6	X	X	~~193~~	4	3	1	3	2	2	3	5	6	X	X
X	X	1	5	6	6	X	X	~~194~~	4	3	1	3	3	2	2	4	5	X	X
X	X	4	5	5	6	X	X	~~195~~	4	3	1	4	2	2	2	4	5	X	X
X	X	5	6	6	6	X	X	~~196~~	4	3	1	4	3	1	2	6	6	X	X
X	X	6	6	6	6	X	X	~~197~~	4	3	1	4	4	3	4	4	5	X	X
X	X	6	6	6	6	X	X	~~198~~	4	3	1	5	5	1	2	6	6	X	X
X	X	1	2	6	6	X	[illegible]	199	4	3	1	5	5	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~200~~	4	3	1	6	2	2	3	4	5	X	X
X	X	2	4	4	5	X	X	~~201~~	4	3	1	7	4	2	2	4	5	X	X
X	X	2	5	6	6	X	X	~~202~~	4	3	1	8	3	2	3	3	6	X	X
X	X	3	3	4	5	X	X	~~203~~	[illegible]	3	1	8	3	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~204~~	4	3	1	8	5	2	2	4	5	X	X
X	X	4	5	6	6	X	X	~~205~~	4	3	2	X	X	1	2	5	6	X	X
X	X	4	6	6	6	X	X	~~206~~	4	3	2	X	X	1	3	4	6	X	X
X	X	5	6	6	6	X	X	~~207~~	4	3	2	X	X	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~208~~	4	3	2	X	X	2	3	4	6	X	X
X	X	2	4	4	6	X	X	~~209~~	4	3	2	X	X	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~210~~	4	3	2	X	X	3	3	5	6	X	X
X	X	5	6	6	6	X	X	~~211~~	4	3	2	X	X	3	4	5	6	X	X
X	X	6	6	6	6	X	X	~~212~~	4	3	2	X	X	4	4	5	6	X	X
[illegible]	X	1	5	6	6	X	X	~~213~~	4	3	2	X	X	4	5	5	6	X	X
X	X	3	5	5	6	X	X	~~214~~	4	3	2	X	X	4	5	6	6	X	X
X	X	5	6	6	6	X	X	~~215~~	4	3	2	X	X	5	5	6	6	X	X
X	X	1	5	6	6	X	X	~~216~~	4	3	3	X	X	1	2	5	6	X	X
X	X	2	2	4	6	X	X	~~217~~	4	3	3	X	X	1	3	4	6	X	X
X	X	2	3	5	6	X	X	~~218~~	4	3	3	X	X	2	3	4	5	X	X
X	X	3	3	5	5	X	X	~~219~~	4	3	3	X	X	2	3	4	6	X	X
X	X	5	5	6	6	X	X	~~220~~	4	3	3	X	X	2	3	5	6	X	X
X	X	6	6	6	6	4	1	~~221~~	4	3	3	X	X	3	3	5	6	X	X
X	X	6	6	6	6	4	2	~~222~~	4	3	3	X	X	3	4	5	6	X	X
X	X	2	3	5	6	X	X	~~223~~	4	3	3	X	X	4	4	5	6	X	X
X	X	5	6	6	6	X	X	~~224~~	4	3	3	X	X	4	5	5	6	X	X
X	X	2	3	5	6	X	X	~~225~~	4	3	3	X	X	4	6	6	6	X	X
X	X	3	3	5	5	X	X	~~226~~	4	3	3	X	X	5	5	6	6	X	X
X	X	4	5	5	6	X	X	~~227~~	4	3	4	X	X	2	3	5	6	X	X
X	X	4	5	5	6	X	X	~~228~~	4	3	4	X	X	3	3	5	6	X	X
X	X	1	2	5	6	X	X	~~229~~	4	3	4	X	X	3	3	6	6	X	X
X	X	1	2	6	6	X	X	~~230~~	4	3	4	X	X	3	4	5	6	X	X
X	X	1	3	4	6	X	X	~~231~~	4	3	4	X	X	4	5	5	6	X	X
X	X	2	2	4	5	X	X	~~232~~	4	3	5	X	X	2	3	5	6	X	X
X	X	2	2	5	6	X	X	~~233~~	4	3	5	X	X	3	4	5	6	X	X
X	X	2	3	4	5	X	X	~~234~~	4	3	5	X	X	4	5	5	6	X	X
X	X	2	3	4	6	X	X	~~235~~	5	3	1	X	X	1	2	4	6	X	X
X	X	2	3	5	6	X	X	~~236~~	5	3	1	X	X	1	2	5	6	X	X
X	X	2	4	4	6	X	X	~~237~~	5	3	1	X	X	3	3	5	6	X	X
X	X	2	4	6	6	X	X	~~238~~	5	3	1	X	X	3	5	5	6	X	X
X	X	2	5	6	6	X	X	~~239~~	5	3	1	X	X	5	5	6	6	X	X
X	X	3	3	3	5	X	X	~~240~~	5	3	1	X	X	5	6	6	6	X	X
X	X	3	3	4	5	X	X	~~241~~	5	3	2	X	X	6	6	6	6	X	X
X	X	3	3	5	5	X	X	~~242~~	6	3	1	X	X	5	6	6	6	X	X
X	X	3	3	5	6	X	X	~~243~~	6	3	1	X	X	6	6	6	6	X	X
X	X	3	4	4	5	X	X	~~244~~	6	3	1	1	3	6	6	6	6	X	X
X	X	3	4	5	6	X	X	~~245~~	6	3	1	1	4	1	2	4	6	X	X
X	X	3	5	5	6	X	X	~~246~~	6	3	1	1	4	3	4	4	5	X	X
X	X	4	4	5	6	X	X	~~247~~	6	3	1	1	5	1	2	4	6	X	X
X	X	4	5	5	6	X	X	~~248~~	6	3	1	4	2	6	6	6	6	X	X
X	X	4	5	6	6	X	X	~~249~~	6	3	1	6	1	6	6	6	6	X	X
X	X	5	5	6	6	X	X	~~250~~	6	3	1	6	2	6	6	6	6	X	X
X	X	[illegible]	6	6	6	X	X	~~251~~	6	3	1	7	3	6	6	6	6	X	X
X	X	6	6	6	6	X	X	~~252~~	6	3	1	7	4	6	6	6	6	X	X
X	X	2	5	6	6	X	X	~~253~~	6	3	1	8	2	6	6	6	6	X	X
2	3	3	3	3	5	X	X	~~254~~	6	[illegible]	1	8	4	1	2	4	6	X	X
3	1	2	2	4	5	X	X	~~255~~	6	3	1	8	5	1	2	4	6	X	X
3	1	6	6	6	6	X	X	~~256~~	6	3	1	8	5	6	6	6	6	X	X

Terrain Factor Family	Terrain Factor	Unit of Measure	Class Ranges 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	OL	SM	SP	GP		
	Depth of Thaw	In.	0-24	24-42	>42					
Surface Geometry	Slope	Deg	0-3	3-6	6-12	12-26.5	>26.5			
	Terrain Approach	Deg	<100	100-125	125-150	150-165	165-180	180-200	200-210	210->220
	Step Height	In.	0-12	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1,3,6, & 10 in. in diameter	Ft	0-5	5-10	10-20	20-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg.	<145	145-155	155-165	165->180				
	Water Depth	Ft.	3-6	6-10						

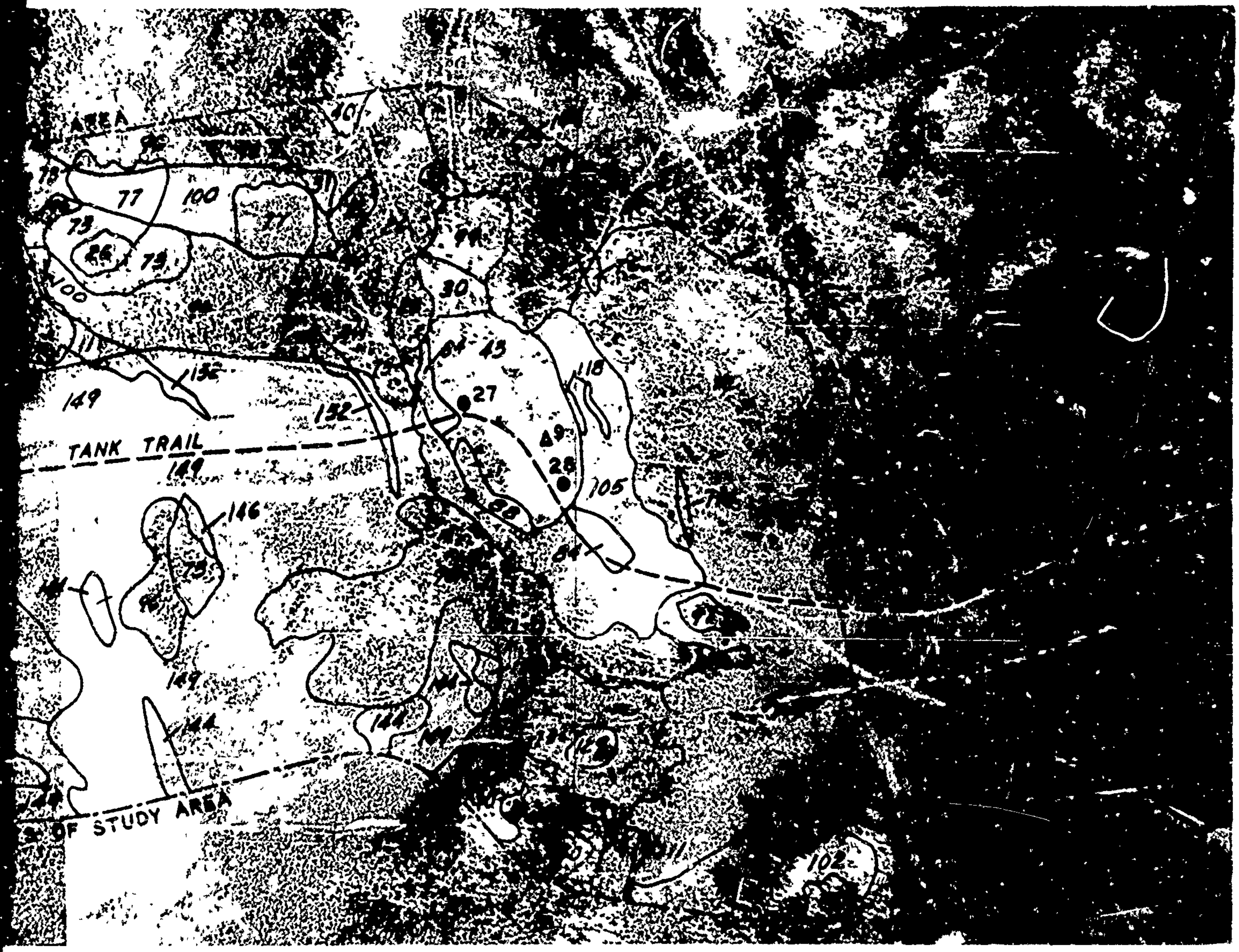
K



KEY

▲ SURFACE CONDITION SAMPLE SITE
● SURFACE GEOMETRY SAMPLE SITE

NOTE SEE FIG. 2 FOR INDEX OF AREA COVERED



TERRAIN TYPE MAP
SEGMENT G

SCALE IN FEET

500 0 500

PLATE

LEGEND

Terrain Unit*	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App. Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom: Contact App Angle	Hydro Geom: Water Depth
~~1~~	1	1	1	X	X	1	3	4	6	X	X
~~2~~	1	1	1	X	X	1	4	4	6	X	X
~~3~~	1	1	1	X	X	1	4	6	6	X	X
~~4~~	1	1	1	X	X	2	3	4	6	X	X
~~5~~	1	1	1	X	X	2	4	4	5	X	X
~~6~~	1	1	1	X	X	2	[illegible]	4	6	X	X
~~7~~	1	1	1	X	X	2	4	5	6	X	X
~~8~~	1	1	1	X	X	2	4	6	6	X	X
~~9~~	1	1	1	X	X	2	5	5	6	X	X
~~10~~	1	2	1	X	X	1	2	5	6	X	X
~~11~~	1	2	1	X	X	2	4	5	6	X	X
~~12~~	1	2	1	X	X	2	4	6	6	X	X
~~13~~	1	2	1	X	X	3	5	6	6	X	X
~~14~~	1	2	1	X	X	4	6	6	6	X	X
15	1	2	1	X	X	1	2	3	5	X	X
16	1	3	1	X	X	1	2	3	6	X	X
17	1	3	1	X	X	1	2	4	5	X	X
18	1	3	1	X	X	1	2	4	6	X	X
19	1	3	1	X	X	1	2	3	6	X	X
~~20~~	1	3	1	X	X	1	3	4	6	X	X
~~21~~	1	3	1	X	X	1	3	6	6	X	X
~~22~~	1	3	1	X	X	1	4	6	6	X	X
23	1	3	1	X	X	2	2	4	5	X	X
24	1	3	1	X	X	2	3	3	6	X	X
25	1	3	1	X	X	2	3	4	5	X	X
26	1	3	1	X	X	2	3	4	6	X	X
27	1	3	1	X	X	2	3	5	6	X	X
28	1	3	1	X	X	2	4	4	5	X	X
~~29~~	1	3	1	[illegible]	X	2	4	4	5	X	X
~~30~~	1	3	1	X	X	2	4	5	6	X	X
31	1	3	1	X	X	2	4	6	6	X	X
~~32~~	1	3	1	X	X	2	5	5	6	X	X
~~33~~	1	3	1	X	X	2	5	6	6	X	X
~~34~~	1	3	1	X	X	3	3	3	3	X	X
~~35~~	1	3	1	X	X	3	3	4	5	X	X
~~36~~	1	3	1	X	X	3	3	5	5	X	X
37	1	3	1	X	X	3	3	5	6	X	X
38	1	3	1	X	X	3	3	6	6	X	X
39	1	3	1	X	X	3	4	5	6	X	X
~~40~~	1	3	1	X	X	3	5	5	6	X	X
~~41~~	1	3	1	X	X	3	5	6	6	X	X
~~42~~	1	3	1	X	X	4	4	5	6	X	X
43	1	3	1	X	X	4	4	6	6	X	X
~~44~~	1	3	1	X	X	4	5	6	6	X	X
~~45~~	1	3	1	X	X	5	5	6	6	X	X
~~46~~	1	3	1	X	X	5	6	6	6	X	X
~~47~~	1	3	1	X	X	6	6	6	6	X	X
48	1	3	1	[illegible]	4	1	2	3	5	X	X
49	1	3	1	2	2	2	3	3	6	X	X
50	1	3	1	3	1	1	2	4	5	X	X
~~51~~	1	3	1	4	2	2	5	6	6	X	X
~~52~~	1	3	1	4	3	3	3	3	3	X	X
53	1	3	1	6	2	1	2	3	5	X	X
54	1	3	1	6	2	1	2	5	6	X	X
~~55~~	1	3	1	6	2	3	2	5	6	X	X
~~56~~	1	3	1	6	2	3	5	6	6	X	X
57	1	3	1	6	4	1	2	3	5	X	X
~~58~~	1	3	1	6	5	2	3	4	6	X	X
59	1	3	1	7	2	2	3	3	6	X	X
~~60~~	1	3	1	7	4	3	3	4	5	X	X
61	1	3	1	8	1	1		5	6	X	X
62	1	3	1	8	2	2	3	3	6	X	X
~~63~~	1	3	1	8	2	2	5	6	6	X	X
~~64~~	1	3	1	8	3	3	5	6	6	X	X

Terrain Unit*	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom: Contact App Angle	Hydro Geom: Water Depth
65	1	3	1	8	4	1	2	3	5	X	X
66	1	3	2	X	X	1	2	4	6	X	X
~~67~~	1	3	2	X	X	1	2	5	6	X	X
~~68~~	1	3	2	X	X	[illegible]	3	4	6	X	X
~~69~~	1	3	2	X	X	1	3	6	6	X	X
~~70~~	1	3	2	X	X	1	4	6	6	X	X
71	1	3	2	X	X	2	2	4	5	X	X
72	1	3	2	X	X	2	2	4	6	X	X
~~73~~	1	3	2	X	X	2	3	4	6	X	X
74	1	3	2	X	1	2	3	5	6	X	X
~~75~~	1	3	2	X	X		4	4	6	X	X
~~76~~	1	3	2	X	X	2	4	5	6	X	X
77	1	3	2	X	X	2	4	6	6	X	X
~~78~~	1	3	2	X	X	2	5	6	6	X	X
~~79~~	1	3	2	X	X	3	3	5	6	X	X
~~80~~	1	3	2	X	X	3	4	5	6	X	X
~~81~~	1	3	2	X	X	3	5	5	6	X	X
~~82~~	1	3	2	X	X	3	5	6	6	X	X
~~83~~	1	3	2	X	X	4	4	5	6	X	X
~~84~~	1	3	2	X	X	4	4	6	6	X	X
~~85~~	1	3	2	X	X	4	5	6	6	X	X
~~86~~	1	3	2	X	X	5	5	6	6	X	X
87	1	3	2	X	X	6	6	6	6	X	X
88	1	3	3	X	X	1	2	4	5	X	X
89	1	3	3	X	X	1	2	4	6	X	X
~~90~~	1	3	3	X	X	1	2	5	6	X	X
~~91~~	1	3	3	X	X	1	3	4	6	X	X
~~92~~	1	3	3	X	X	1	3	6	6	X	X
~~93~~	1	3	3	X	X	1	4	6	6	X	X
94	1	3	3	X	X	2	2	4	5	X	X
95	1	3	3	X	X	2	2	4	6	X	X
~~96~~	1	3	3	X	X	2	3	4	6	X	X
97	1	3	3	X	X	2	3	5	6	X	X
~~98~~	1	3	3	X	X	2	4	4	6	X	X
~~99~~	1	3	3	X	X	2	4	5	6	X	X
100	1	3	3	X	X	2	4	6	6	X	X
101	1	3	3	X	X	3	4	5	6	X	X
~~102~~	1	3	3	X	X	3	5	5	6	X	X
~~103~~	1	3	3	X	X	3	5	6	6	X	X
~~104~~	1	3	3	X	X	4	4	5	6	X	X
~~105~~	1	3	3	X	X	4	4	6	6	X	X
~~106~~	1	3	3	X	X	4	3	6	6	X	X
107	1	3	3	X	X	6	6	6	6	X	X
~~108~~	1	3	4	X	X	1	3	4	6	X	X
~~109~~	1	3	4	X	X	1	4	6	6	X	X
110	1	3	4	X	X	2	2	4	5	X	X
~~111~~	1	3	4	X	X	2	3	4	6	X	X
112	1	3	4	X	X	2	3	5	6	X	X
~~113~~	1	3	4	X	X	2	4	4	6	X	X
~~114~~	1	3	4	X	X	2	4	5	6	X	X
~~115~~	1	3	4	X	X	2	4	6	6	[illegible]	X
116	1	3	4	X	X	3	4	5	6	X	X
~~117~~	1	3	4	X	X	4	4	5	6	X	X
~~118~~	1	3	4	X	X	4	4	6	6	X	X
119	1	3	4	X	X	6	6	6	6	X	X
120	1	3	5	X	X	2	2	4	5	X	X
121	1	3	5	X	X	2	3	5	6	X	X
122	1	3	5	X	X	6	6	6	6	X	X
~~123~~	2	2	1	X	X	1	3	6	6	X	X
~~124~~	2	2	1	X	X	1	5	6	6	X	X
125	2	2	1	X	X	2	5	6	6	X	X
126	2	2	1	X	X	4	5	5	6	X	X
~~127~~	2	2	1	X	X	5	5	6	6	X	X
~~128~~	2	2	1	X	X	5	6	6	6	X	X

Terrain Unit*	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10
~~129~~	2	2	1	X	X	6	6	6	6
~~130~~	2	2	2	X	X	1	5	6	6
131	2	2	2	X	X	2	5	5	6
~~132~~	2	2	3	X	X	5	6	6	5
~~133~~	3	1	1	X	X	6	[illegible]	6	6
~~134~~	3	1	2	X	X	6	6	6	6
135	3	2	1	X	X	1	3	6	6
~~136~~	3	2	1	X	X	1	5	6	6
~~137~~	3	2	1	X	X	2	4	4	6
~~138~~	3	2	1	X	X	2	5	6	6
~~139~~	3	2	1	X	X	3	3	4	5
~~140~~	3	2	1	X	X	3	5	5	6
~~141~~	3	2	1	X	X	4	5	6	6
~~142~~	3	2	1	X	X	4	6	6	6
~~143~~	3	2	1	X	X	5	6	6	6
~~144~~	3	2	2	X	X	1	5	6	6
~~145~~	3	2	2	X	X	2	4	6	6
~~146~~	3	2	2	X	X	3	5	5	6
~~147~~	3	2	2	X	X	5	6	6	6
~~148~~	3	2	2	X	X	6	6	6	5
~~149~~	3	2	3	X	X	1	5	6	6
~~150~~	3	2	3	X	X	3	5	5	6
~~151~~	3	2	3	X	X	5	6	6	6
~~152~~	3	2	4	X	X	1	5	6	6
153	3	3	1	X	X	2	2	4	6
~~154~~	3	3	1	X	X	2	3	5	6
155	3	3	1	X	X	3	3	5	5
~~156~~	3	3	1	X	X	5	5	6	6
~~157~~	3	3	X	X	X	6	5	6	6
~~158~~	3	3	X	X	X	6	6	6	6
~~159~~	3	3	2	X	X	2	3	5	6
~~160~~	3	3	2	X	X	5	6	5	6
~~161~~	3	3	3	X	X	2	3	5	6
162	3	3	3	X	X	3	3	5	5
163	3	3	3	X	X	4	5	5	6
~~164~~	3	3	4	X	X	4	5	5	6
~~165~~	4	3	1	X	X	1	2	5	6
~~166~~	4	3	1	X	X	1	2	6	6
~~167~~	4	3	1	X	X	1	3	4	6
~~168~~	4	3	1	X	X	2	2	4	5
~~169~~	4	3	1	X	X	2	2	5	6
~~170~~	4	3	1	X	X	2	3	4	5
~~171~~	4	3	1	X	X	2	3	4	6
~~172~~	4	3	1	X	X	2	3	5	6
~~173~~	4	3	1	X	X	2	4	4	6
~~174~~	4	3	1	X	X	2	4	6	6
~~175~~	4	3	1	X	X	2	5	6	6
~~176~~	4	3	1	X	X	3	3	3	5
177	4	3	1	X	X	3	3	4	5
~~178~~	4	3	1	X	X	3	3	5	5
~~179~~	4	3	1	X	X	3	3	5	6
~~180~~	4	3	1	X	X	3	4	4	5
~~181~~	4	3	1	X	X	3	4	5	6
~~182~~	4	3	2	X	X	3	5	5	6
~~183~~	4	3	1	X	X	4	4	5	6
~~184~~	4	3	1	X	X	4	5	5	6
185	4	3	1	X	X	4	5	6	6
~~186~~	4	3	1	X	X	5	5	6	6
~~187~~	4	3	1	X	X	5	6	6	6
~~188~~	4	3	1	X	X	6	6	6	6
189	4	3	2	X	X	4	5	6	6
~~190~~	4	3	1	2	3	3	3	3	5
~~191~~	4	3	1	3	1	2	2	4	5
~~192~~	4	3	1	3	1	6	6	6	6

*Each terrain unit represents a combination of numbers indicating the mapping classes (or absence) of the following factors: soil type, depth of thaw, slope, approach angle, step height, spacing of stem diameters ≥1, 3, 6, and 10 in., contact approach angle, and water depth. Mapping class ranges of each factor are shown to the right.

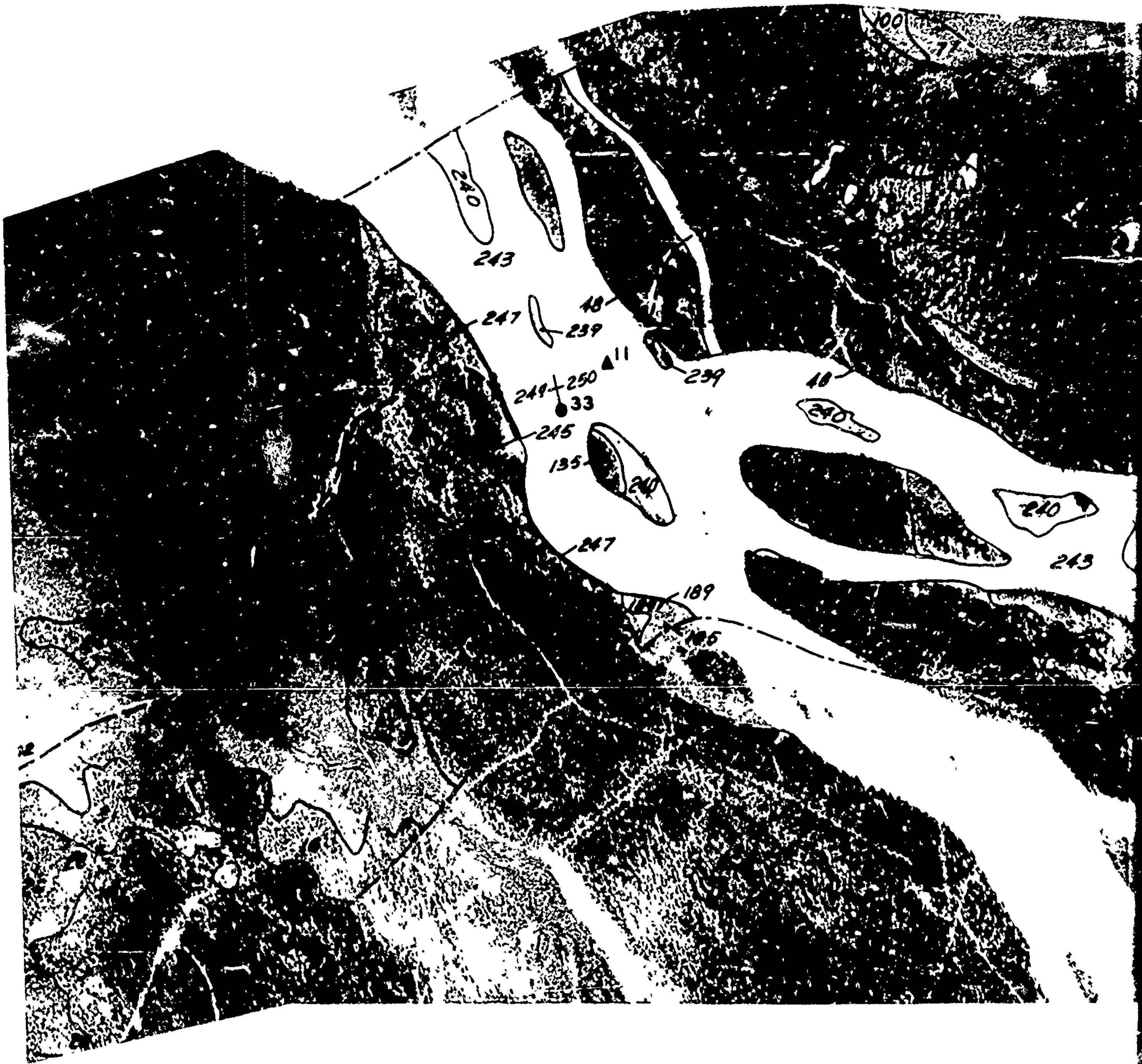
~~###~~ Unit not mapped

X Factor absent

H

[illegible] Geometry App Angle	Step Height	Vegetation Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom Contact App. Angle	Water Depth	Terrain Unit	Surface Condition Type	Depth of Thaw	Surface Geometry Slope	App Angle	Step Height	Vegetation Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom Contact App.	Water Depth
X	X	6	6	6	6	X	X	~~193~~	4	3	1	3	2	[illegible]	3	5	6	X	X
X	X	1	5	6	6	X	X	~~194~~	6	3	1	3	3	2	2	4	5	X	X
X	X	4	5	5	6	X	X	~~195~~	4	[illegible]	1	4	2	[illegible]	[illegible]	4	5	X	X
X	X	5	6	6	6	X	X	~~196~~	4	3	1	4	3	1	2	6	6	X	X
X	X	6	6	6	6	X	X	~~197~~	4	3	1	4	4	3	4	4	5	X	X
X	X	6	6	[illegible]	6	X	X	~~198~~	4	3	1	5	5	1	2	6	6	X	X
X	X	1	3	6	6	X	X	~~199~~	4	3	1	5	5	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~200~~	4	3	1	6	2	2	3	4	5	X	X
X	X		4	4	[illegible]	X	X	~~201~~	4	3	1	7	4	2	2	4	5	X	X
X	X	[illegible]	5	6	6	X	X	~~202~~	4	3	1	8	3	2	3	3	6	X	X
X	X	3	3	4	5	X	X	~~203~~	4	3	1	8	3	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~204~~	4	3	1	8	5	[illegible]	2	4	5	X	X
X	X	4	5	6	6	X	X	~~205~~	4	3	[illegible]	X	X	1	2	5	6	X	X
X	X	4	6	6	6	X	X	~~206~~	4	3	2	X	X	1	3	4	6	X	X
X	X	[illegible]	6	6	6	X	X	~~207~~	4	3	2	X	X	2	3	4	5	X	X
X	X	1	5	6	6	X	X	~~208~~	4	3	[illegible]	X	X	2	3	4	6	X	X
X	X	2	4	4	6	X	X	~~209~~	4	3	2	X	X	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~210~~	4	3	2	X	X	3	3	5	6	X	X
X	X	5	6	6	6	X	X	~~211~~	4	3	2	X	X	3	4	5	6	X	X
X	X	6	6	6	6	X	X	~~212~~	4	3	2	X	X	4	4	5	6	X	X
X	X	1	5	6	6	X	X	~~213~~	4	3	2	X	X	4	5	5	6	X	X
X	X	3	5	5	6	X	X	214	4	3	2	X	X	4	5	6	6	X	X
X	X	5	6	6	6	X	X	~~215~~	4	3	2	X	X	5	5	6	6	X	X
X	X	1	[illegible]	6	6	X	X	~~216~~	4	3	3	X	X	1	2	5	6	X	X
X	X	2	2	4	6	X	X	~~217~~	4	3	3	X	X	1	3	4	6	X	X
X	X	2	3	5	6	X	X	~~218~~	4	3	3	X	X	2	3	4	5	X	X
X	X	3	3	5	5	X	X	~~219~~	4	3	3	X	X	2	3	4	6	X	X
X	X	5	5	6	6	X	X	~~220~~	4	3	3	X	X	2	3	5	6	X	X
X	X	6	6	6	6	4	1	~~221~~	4	3	3	X	X	3	3	5	6	X	X
X	X	6	6	6	6	4	2	~~222~~	4	3	3	X	X	3	4	5	6	X	X
X	X	[illegible]	3	5	6	X	X	~~223~~	4	3	3	X	X	4	4	5	6	X	X
X	X	5	6	6	6	X	X	~~224~~	4	3	3	X	X	4	5	5	6	X	X
X	X	2	3	5	6	X	X	225	4	3	3	X	X	4	6	6	6	X	X
X	X	3	3	5	5	X	X	~~226~~	4	3	3	X	X	5	5	6	6	X	X
X	X	4	[illegible]	5	6	X	X	~~227~~	6	3	4	X	X	2	3	5	6	X	X
X	[illegible]	4	5	5	6	X	X	~~228~~	4	3	4	X	X	3	3	5	6	X	X
X	X	1	2	5	6	X	X	~~229~~	4	3	4	X	X	3	5	6	6	X	X
X	X	1	2	6	6	X	X	~~230~~	4	3	4	X	X	3	4	5	6	X	X
X	X	1	3	4	6	X	X	~~231~~	4	3	4	X	X	4	5	5	6	X	X
X	X	2	2	4	5	X	X	~~232~~	4	3	5	X	X	2	3	5	6	X	X
X	X	2	2	5	6	X	X	~~233~~	4	3	5	X	X	3	4	5	6	X	X
X	X	2	3	4	5	X	X	~~234~~	4	3	5	X	X	4	5	5	6	X	X
X	X	2	3	4	6	X	X	235	5	3	[illegible]	X	X	1	2	4	6	X	X
X	X	[illegible]	3	5	6	X	X	236	5	3	1	X	X	1	2	5	6	X	X
X	X	2	4	4	6	X	X	237	5	3	1	X	X	3	3	5	6	X	X
[illegible]	X	2	4	6	6	X	X	~~238~~	5	3	1	X	X	3	5	5	6	X	X
X	X	2	5	6	6	X	X	239	5	3	1	X	X	5	5	[illegible]	6	X	X
X	X	3	3	3	5	X	X	240	5	3	1	X	X	5	6	6	6	X	X
X	X	3	3	4	5	X	X	241	5	3	2	X	X	6	6	[illegible]	6	X	X
X	X	3	[illegible]	5	5	X	X	~~242~~	6	3	1	X	X	5	5	6	6	X	X
X	X	3	3	5	6	X	X	243	6	3	1	X	X	6	6	6	6	X	X
X	X	3	4	4	5	X	X	~~244~~	6	3	1	1	3	6	6	6	6	X	X
X	X	3	4	5	[illegible]	X	X	245	6		1	1	4	1	2	4	6	X	X
X	X	3	5	5	6	X	X	~~246~~	6	3	1	1	4	3	2	4	5	X	X
X	X	4	4	5	6	[illegible]	X	247	6	3	1	1	5	1	2	4	6	X	X
X	X	4	5	5	6	X	X	~~248~~	6	3	1	4	2	6	6	6	6	X	X
X	X	4	5	6	6	X	X	249	6	3	1	6	1	6	6	6	6	X	X
X	X	5	5	6	6	X	X	250	6	3	1	6	2	6	6	6	6	X	X
X	X	5	6	6	6	X	X	~~251~~	6	3	1	7	3	6	6	6	6	X	X
X	X	6	6	6	6	X	X	~~252~~	6	3	1	7	4	6	6	6	6	X	X
X	X	4	5	6	6	X	X	~~253~~	6	3	1	8	2	6	6	6	6	X	X
2	3	3	3	3	5	X	X	254	6	3	1	8	4	1	2	4	6	X	X
3	1	2	2	4	5	X	X	~~255~~	6	3	1	8	5	1	2	4	6	X	X
3	1	6	6	6	6	X	X	~~256~~	6	3	1	[illegible]	5	6	6	6	6	X	X

Terrain Factor Family	Terrain Factor	Unit of Measure	Class Ranges 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	CL	SM	SP	GP		
	Depth of Thaw	In.	0-24	24-42	>42					
Surface Geometry	Slope	Deg	0-3	3-6	6-12	12-26.5	>26.5			
	Terrain Approach	Deg	≤100	100-125	125-150	150-165	165-180	180-200	200-210	210->220
	Step Height	In.	0-12	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1,3,6, & 10 in. in diameter	Ft	0-5	5-10	10-20	20-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg	<145	145-155	155-165	165->180				
	Water Depth	Ft.	3-6	6-10						



KEY

▲ SURFACE CONDITION SAMPLE SITE
● SURFACE GEOMETRY SAMPLE SITE

NOTE: SEE FIG. 2 FOR INDEX OF AREA COVERED

TERRAIN TYPE MAP
SEGMENT H

SCALE IN FEET

500 0 500

PLAT

L E G E N D

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In) 1	3	6	10	Hydro Geom Contact: App Angle	Water Depth
[illegible]	1	1	[illegible]	X	X	1	3	[illegible]	[illegible]	X	X
[illegible]	1	1	1	X	X	1	[illegible]	[illegible]	[illegible]	X	X
[illegible]	1	1	1	X	X	[illegible]	[illegible]	[illegible]	[illegible]	X	X
[illegible]	1	1	1	X	X	[illegible]	3	[illegible]	6	X	X
[illegible]	1	1	1	X	[illegible]	[illegible]	4	[illegible]	5	X	X
[illegible]	1	1	[illegible]	X	X		[illegible]	4	[illegible]	X	X
[illegible]	1	1	1	X	X		[illegible]		[illegible]	X	X
[illegible]	1	1	1	X	X	[illegible]	[illegible]	[illegible]	[illegible]	X	X
[illegible]	1	1	1	X	X			5	6	X	X
[illegible]	1		1	X	X	1			6	X	X
[illegible]	1		1	X	X		[illegible]	5	6	X	X
[illegible]	1		1	X	X	[illegible]	4	6	6	X	X
[illegible]	1		1	X	X	3	5	6	6	X	X
[illegible]	1		1	X	X	[illegible]	6	6	6	X	X
[illegible]	1		1	X	X	1	[illegible]	3	5	X	X
[illegible]	1	3	1	X	X	1	[illegible]	3	6	X	X
[illegible]	1	3	1	X	X	[illegible]	[illegible]	4	5	X	X
[illegible]	1	3	1	X	X	1	[illegible]	4	6	X	X
[illegible]	1	3	1	X	X	1	[illegible]	5	6	X	X
[illegible]	1	3	1	X	X	1	3	4	6	X	X
[illegible]	1	3	1	X	X	1	3	6	6	X	X
[illegible]	1	3	1	X	X	1	4	6	6	X	X
[illegible]	1	3	1	X	[illegible]			4	5	X	X
[illegible]	1	3	1	X	X	[illegible]	3	3	6	X	X
[illegible]	1	3	1	X	X		3	4	5	X	X
	1	3	1	X	X		3	[illegible]	6	X	X
[illegible]	1	3	1	X	X		[illegible]	[illegible]	[illegible]	X	X
	1	3	1	X	X		4	[illegible]		X	X
[illegible]	1	3	1	X	X			[illegible]	[illegible]	X	X
[illegible]	[illegible]	3	1	X	X			[illegible]	[illegible]	X	X
91	[illegible]	3	[illegible]	X	X		[illegible]	[illegible]	[illegible]	X	X
[illegible]	[illegible]	3	[illegible]	X	X				[illegible]	X	X
[illegible]		3	1	X	X			[illegible]	[illegible]	X	X
[illegible]	[illegible]	3		X	X	[illegible]	[illegible]	[illegible]	3	X	X
[illegible]		3	1	X	X	[illegible]	[illegible]	[illegible]		X	X
[illegible]		3	1	X	X	[illegible]	3			X	X
[illegible]	1	3	1	X	X	3	[illegible]	[illegible]	[illegible]	X	X
[illegible]		3	1	X	X	[illegible]	[illegible]	[illegible]	6	X	X
[illegible]	1	[illegible]	[illegible]	X	X	1	[illegible]	5	6	X	X
[illegible]		[illegible]		X	X	1			6	X	X
[illegible]	[illegible]	[illegible]	[illegible]	X	X	[illegible]		6	6	X	X
[illegible]		3	1	X	X		[illegible]	5	6	X	X
[illegible]			1	X	X	[illegible]	[illegible]	[illegible]	6	X	X
[illegible]	1	3	1	X	X	[illegible]			[illegible]	X	X
[illegible]		3		X	X					X	X
[illegible]	1	3		X	X		[illegible]		[illegible]	X	X
[illegible]	[illegible]	3	1	X	X		[illegible]		[illegible]	X	X
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		X	X
[illegible]	1	3	[illegible]				[illegible]	3	[illegible]	X	X
[illegible]	[illegible]	3	1	3	1			[illegible]		X	X
[illegible]	1	3	1			[illegible]	[illegible]	[illegible]	[illegible]	X	X
[illegible]	1	3	1		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X	X
[illegible]		3	1			1		[illegible]		X	X
[illegible]		3	1							X	X
[illegible]		3	[illegible]				[illegible]		[illegible]	X	X
[illegible]	[illegible]	3	1					[illegible]		X	X
[illegible]	[illegible]	3						3		X	X
[illegible]			1				[illegible]	[illegible]		X	X
[illegible]	1		1				[illegible]	[illegible]		X	X
[illegible]			1			[illegible]				X	X
[illegible]	1			[illegible]	[illegible]	[illegible]				X	X
[illegible]			[illegible]	[illegible]						X	X
[illegible]				[illegible]					[illegible]	X	
[illegible]			[illegible]			[illegible]		[illegible]	[illegible]	X	

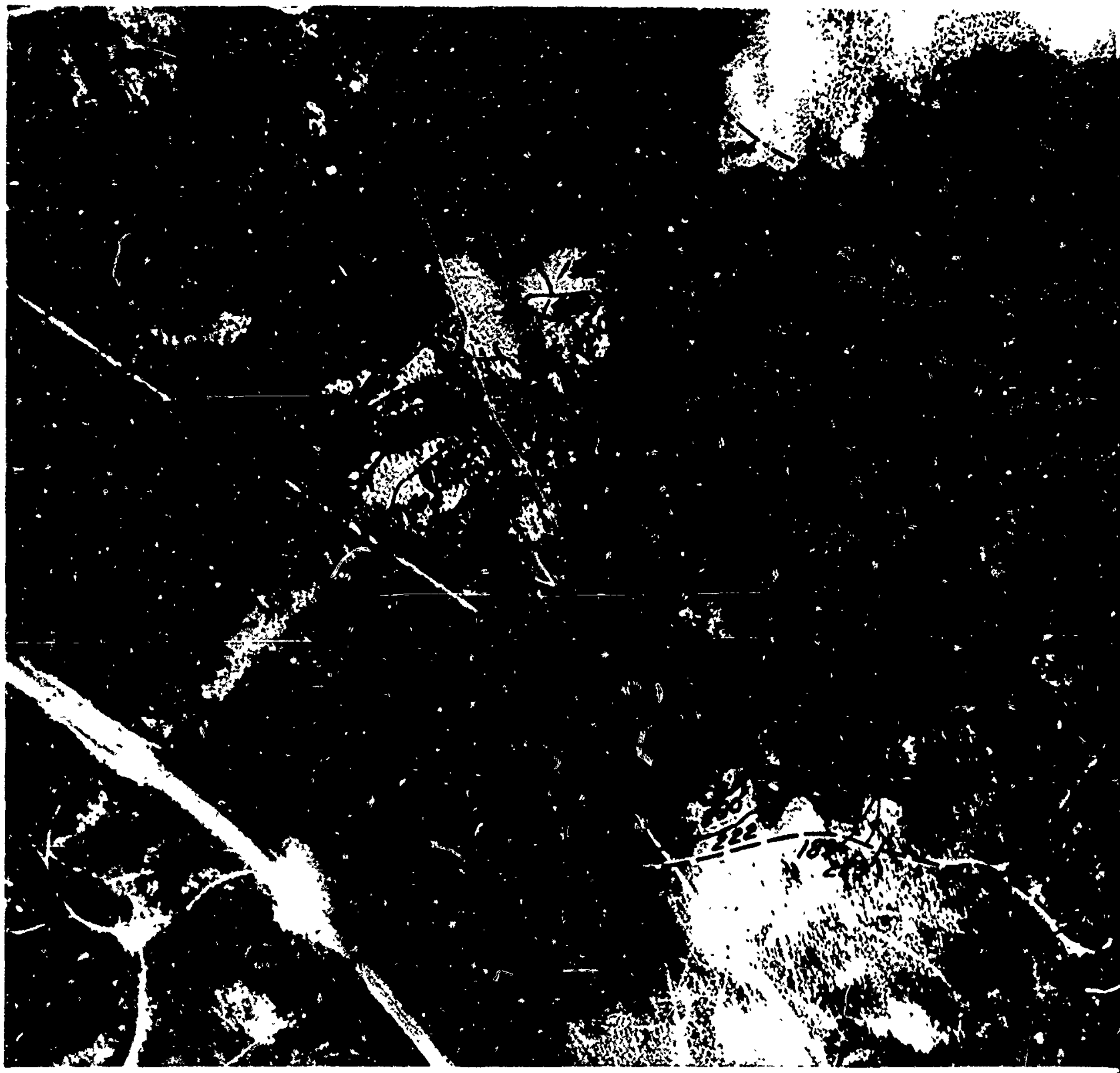
Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In) 1	3	6	10	Hydro Geom Contact: App Angle	Water Depth
[illegible]	1	3	1	X	4	1	[illegible]	3	5	X	X
[illegible]		3		X	X	1	[illegible]	4	6	X	X
[illegible]	1	3		X	X	1		5	6	X	X
[illegible]	1	3	[illegible]	X	X	1	3	4	6	X	X
[illegible]	1	[illegible]		X	X	1	3	6	6	X	X
[illegible]	1	3	[illegible]	X	X	1	[illegible]	6	[illegible]	X	X
[illegible]	1	3		X	X			4	5	X	X
[illegible]	1	3	[illegible]	X	X	[illegible]	[illegible]	[illegible]	6	X	X
73	1	3	[illegible]	X	X		3	4	6	X	X
[illegible]	1	3	[illegible]	X	X	[illegible]	3	5	6	X	X
75	1	3	[illegible]	X	X	[illegible]	4	4	6	X	X
[illegible]	1	3		X	X	[illegible]	4	5	6	X	X
[illegible]	1	3	[illegible]	X	X	[illegible]	4	6	6	X	X
[illegible]	1	3	[illegible]	X	X	[illegible]	5	6	6	X	X
79	1	3	[illegible]	X	X	3	3	5	6	X	X
[illegible]	1	3	[illegible]	X	X	3	[illegible]	5	6	X	X
81	1	3	[illegible]	X	X	3	5	5	6	X	X
[illegible]	1	3	[illegible]	X	X	3	5	6	6	X	X
[illegible]	1	3	[illegible]	X	X	4	4	5	[illegible]	X	X
[illegible]	1	3	[illegible]	X	X	[illegible]	4	6	6	X	X
[illegible]	1	3	[illegible]	X	X	4	5	6	6	X	X
[illegible]	1	3	[illegible]	X	X	5	5	6	6	X	X
[illegible]	1	3	[illegible]	X	X	6	6	6	6	X	X
[illegible]	1	3	3	X	X	1		4	5	X	X
[illegible]	1	3	3	X	X	1	[illegible]	[illegible]	6	X	X
[illegible]	1	3	3	X	X	1	[illegible]	[illegible]	6	X	X
[illegible]	1	3	3	X	X	[illegible]	3	4	6	X	X
[illegible]	1	3	3	X	X	1	3	6	6	X	X
[illegible]	1	3	3	X	X	1	4	6	6	X	X
[illegible]	[illegible]	3	3	X	X		[illegible]	4	5	X	X
[illegible]	1	3	3	X	X	[illegible]	[illegible]	4	6	X	X
96	1	3	3	X	X	[illegible]	3	4	6	X	X
[illegible]	1	3	3	X	X	[illegible]	3	5	6	X	X
[illegible]	1	3	3	X	X	[illegible]	4	4	6	X	X
[illegible]	1	3	3	X	X	[illegible]	4	5	6	X	X
[illegible]	1	3	3	X	X	[illegible]	4	6	6	X	X
[illegible]	1	3	3	X	X	3	4	5	6	X	X
[illegible]	1	3	3	X	X	3	5	5	6	X	X
[illegible]	1	3	3	X	X	3	5	6	6	X	X
[illegible]	1	3	3	X	X	4	4	5	6	X	X
[illegible]	1	3	3	X	X	4	4	6	6	X	X
[illegible]	1	3	3	X	X	4	5	6	6	X	X
[illegible]	1	3	3	[illegible]	X	6	[illegible]	6	6	X	X
[illegible]	1	3	[illegible]	X	X	1	3	[illegible]	6	X	X
[illegible]	1	3	[illegible]	X	X	1	[illegible]	[illegible]	6	X	X
[illegible]	1	3	[illegible]	X	X	[illegible]		4	5	X	X
[illegible]	1	3	4	X	X		3	4	[illegible]	X	X
[illegible]	1	[illegible]	4	X	X	[illegible]	3	5	[illegible]	X	X
[illegible]	1	3	[illegible]	X	X	[illegible]	4	[illegible]	5	X	X
[illegible]	1	3	4	X	X	[illegible]	4	5	6	X	X
[illegible]	1	3	[illegible]	X	X		4	6	6	X	X
[illegible]	1	3	[illegible]	X	X	3	[illegible]	5	6	X	X
[illegible]	[illegible]	3	[illegible]	X	X	[illegible]	4	5	6	X	X
[illegible]	1	3	4	X	X	4	[illegible]	[illegible]	6	X	X
[illegible]	1	3	[illegible]	X	X	6	6	[illegible]	6	X	X
[illegible]	1	3	5	X	X	[illegible]	[illegible]	4	[illegible]	X	X
[illegible]	1	3		X	X	[illegible]	3	5	6	X	X
[illegible]	1	3	5	X	X	6	6	6	6	X	X
[illegible]			1	X	X	1	3	6	6	X	X
[illegible]		[illegible]	1	X	X	1	5	6	6	X	X
1[illegible]5			1	X	X	[illegible]	5	6	6	X	X
[illegible]			[illegible]	X	X	[illegible]	5	5	6	X	X
[illegible]			1	X	X	5	5	[illegible]	6	X	X
1[illegible]8		[illegible]	1	X	X	5	6	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In) 1	3	6	10
129			1	X	X		6	6	6
[illegible]				X	X	1	5	6	6
[illegible]	[illegible]		[illegible]	X	X	[illegible]	5	5	6
13[illegible]	[illegible]	[illegible]	3	X	X	5	6	6	6
133	3	1	1	X	X	6	6	6	6
134	3			X	X	6	6	6	6
[illegible]	3		1	X	X	1	3	6	6
[illegible]	3		1	X	X	1	[illegible]	[illegible]	[illegible]
13[illegible]	3	[illegible]	1	X	X		4	4	6
[illegible]	3		1	X	X		5	6	6
[illegible]	3	[illegible]	1	X	X	3	3	4	5
[illegible]	3		1	X	X	3	5	5	6
[illegible]	3		1	X	X	[illegible]	[illegible]	6	6
[illegible]	3		1	X	X	4	[illegible]	[illegible]	[illegible]
143	3		1	X	X	5	6	6	6
[illegible]	3			X	X	1	[illegible]	6	[illegible]
14[illegible]	3	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	4	6
[illegible]	3	[illegible]	[illegible]	X	X	3	5	5	6
[illegible]4	3	[illegible]	[illegible]	X	X	5	[illegible]	6	6
[illegible]	3	[illegible]		X	X	6	6	6	6
[illegible]	3	[illegible]	3	X	X	1	5	[illegible]	6
[illegible]	3	[illegible]	3	X	X	3	5	5	6
[illegible]	3	[illegible]	3	X	X	5	6	6	6
[illegible]	3	[illegible]	4	X	X	1	5	6	6
[illegible]	3	3	1	X	X		[illegible]	4	6
154	3	3	1	X	X		3	5	6
[illegible]	3	3	1	X	X	3	3	5	5
[illegible]	3	[illegible]	1	X	X	[illegible]	5	6	6
[illegible]	3	3	X	X	X	6	6	6	6
[illegible]	3	3	X	X	X	[illegible]	6	6	6
159	3	3	[illegible]	X	X		3	5	6
[illegible]	3	3	[illegible]	X	X	5	6	6	6
161	3	3	3	X	X		3	5	6
[illegible]	3	3	3	X	X	3	3	5	5
[illegible]	3	3	3	X	X	[illegible]	[illegible]	5	6
[illegible]	3	3	4	X	X	4	5	5	[illegible]
16[illegible]		3	1	X	X	1		5	6
[illegible]	[illegible]	3	1	X	X	1	[illegible]	[illegible]	6
16[illegible]	4	3	1	X	X	1	3	[illegible]	6
[illegible]	4	3	1	X	X	[illegible]	[illegible]	[illegible]	5
169	4	3	1	X	X			5	6
1[illegible]	4	3	1	X	X		3	4	5
1[illegible]1	4	3	1	X	X		3	4	6
1[illegible]	[illegible]	3	1	X	X		3	[illegible]	6
1[illegible]3	[illegible]	3	1	X	X		[illegible]	[illegible]	6
[illegible]	[illegible]	3	1	X	X		[illegible]	[illegible]	6
[illegible]	[illegible]	3	1	X	X		5	6	6
1[illegible]	[illegible]	3	1	X	X	3	3	3	[illegible]
1[illegible]	[illegible]	3	1	X	X	3	3	4	5
1[illegible]	4	3	1	X	X	3	3	5	[illegible]
1[illegible]	[illegible]	3	1	X	X	3	3	[illegible]	[illegible]
18[illegible]	4	3	1	X	X	3		[illegible]	5
[illegible]	[illegible]	[illegible]	1	X	X	3	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	1	X	X	3	5		[illegible]
18[illegible]		3	1	X	X	[illegible]	[illegible]	[illegible]	[illegible]
18[illegible]	[illegible]	3	1	X	X	4	5	[illegible]	[illegible]
[illegible]	4	3	1	X	X	4	5	6	6
18[illegible]	[illegible]	3	1	X	X			[illegible]	6
[illegible]		3	1	X	X			6	6
[illegible]	[illegible]	3	1	[illegible]	X			[illegible]	[illegible]
[illegible]	4	3		X	X			[illegible]	[illegible]
[illegible]	4	3	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	3	1	3	1				
[illegible]		3	1	3	1	[illegible]			[illegible]

*[illegible] ... presence (x) or absence of the following factors: soil type, depth [illegible] ... stem diameters ≥ [illegible] ... and [illegible] contact approach angle and water depth.
[illegible]

App Angle	Step Height	Vegetation: Stem Diam ≥ (In) 1	3	6	10	Hydro Geom: Contact App Angle	Water Depth	Terrain Unit	Surface Condition: Type	Depth of Thaw	Surface Geometry: Slope	App Angle	Step Height	Vegetation: Stem Diam ≥ (In) 1	3	6	10	Hydro Geom: Contact App	Water Depth
X	X	6	6	6	6	X	X	~~193~~	4	3	1	3	2		3	5	6	X	X
X	X	1	5	6	6	X	X	~~194~~	4	3	1	3	3	2	2	4	5	X	X
X	X	2	5	5	6	X	X	~~195~~	4	3	1	4	2	2	2	4	5	X	X
X	X	5	6	6	6	X	X	~~196~~	4	3	1	4	3	1	2	6	6	X	X
X	X	6	6	6	6	X	X	~~197~~	4	3	1	4	4	3	4	4	5	X	X
X	X	6	6	6	6	X	X	~~198~~	4	3	1	5	5	1	2	6	6	X	X
X	X	1	3	6	6	X	X	199	4	3	1	5	5	2	3	4	5	X	X
X	X	1	5	6	6	X	X	200	4	3	1	6	2	2	3	4	5	X	X
X	X		4	4	6	X	X	~~201~~	4	3	1	7	4	2	2	4	5	X	X
X	X		5	6	6	X	X	~~202~~	4	3	1	8	3	2	3	3	6	X	X
X	X	3	3	4	5	X	X	~~203~~	4	3	1	8	3	2	3	5	6	X	X
X	X	3	5	5	6	X	X	~~204~~	4	3	1	8	5	2	2	4	5	X	X
X	X	4	[illegible]	6	6	X	X	205	4	3	2	X	X	1	2	5	6	X	X
X	X	4	[illegible]		6	X	X	206	4	3	2	X	X	1	3	4	6	X	X
X	X	5	6	6	6	X	X	~~207~~	4	3	2	X	X	2	3	4	5	X	X
X	X	1	5	6	6	X	X	208	4	3	2	X	X	2	3	4	6	X	X
X	X		4	4	6	X	X	209	4	3	2	X	X	2	3	5	6	X	X
X	X	3	5	5	6	X	X	210	4	3	2	X	X	3	3	5	6	X	X
[illegible]	X	5	6	6	6	X	X	211	4	3	2	X	X	3	4	5	6	X	X
[illegible]	X	6	6	6	6	X	X	212	4	3	2	X	X	4	4	5	6	X	X
X	X	1	5	6	6	X	X	213	4	3	2	X	X	4	5	5	6	X	X
X	X	3	5	5	6	X	X	~~214~~	4	3	2	X	X	4	5	6	6	X	X
X	X	5	6	6	6	X	X	215	4	3	2	X	X	5	5	6	6	X	X
X	X	1	5	6	6	X	X	216	4	3	3	X	X	1	2	5	6	X	X
X	X		2	4	6	X	X	217	4	3	3	X	X	1	3	4	6	X	X
X	X		3	5	6	X	X	218	4	3	3	X	X	2	3	4	5	X	X
X	X	3	3	5	5	X	X	219	4	3	3	X	X	2	3	4	6	X	X
X	X	[illegible]	[illegible]	6	6	X	X	220	4	3	3	X	X	2	3	5	6	X	X
X	X	6	6	6	6	4	1	221	4	3	3	X	X	3	3	5	6	X	X
X	X	6	6	6	6	4	2	222	4	3	3	X	X	3	4	5	6	X	X
X	X		3	5	6	X	X	223	4	3	3	X	X	4	4	5	6	X	X
X	X	5	6	6	6	X	X	224	4	3	3	X	X	4	5	5	6	X	X
X	X		3	5	6	X	X	225	4	3	3	X	X	4	6	6	6	X	X
X	X	3	3	5	5	X	X	226	4	3	3	X	X	5	5	6	6	X	X
X	X	4	[illegible]	5	6	X	X	227	4	3	4	X	X	2	2	5	6	X	X
X	X	4	[illegible]	[illegible]	6	X	X	228	4	3	4	X	X	3	3	5	6	X	X
X	X	1		5	6	X	X	~~229~~	4	3	4	X	X	3	3	6	6	X	X
X	X	1	2	6	6	X	X	230	4	3	4	X	X	3	4	5	6	X	X
X	X	1	3	2	6	X	X	231	4	3	4	X	X	4	5	5	6	X	X
X	X	2	2	4	5	X	X	232	4	3	5	X	X	2	3	5	6	X	X
X	X			5	6	X	X	233	4	3	5	X	X	3	4	5	6	X	X
X	X		3	4	5	X	X	234	4	3	5	X	X	4	5	5	6	X	X
X	X		3	4	6	X	X	~~235~~	5	3	1	X	X	1	2	4	6	X	X
X	X		3	5	6	X	X	~~236~~	[illegible]	3	1	X	X	1	2	5	6	X	X
X	X		4	2	6	X	X	~~237~~	5	3	1	X	X	3	3	5	6	X	X
X	X		2	6	6	X	X	~~238~~	5	3	1	X	X	3	5	5	6	X	X
X	X		2	6	6	X	[illegible]	~~239~~	5	3	1	X	X	5	5	6	6	X	X
X	X	3	3	3		X	X	[illegible]	5	3	1	X	X	5	6	6	6	X	X
X	X	3	3	4	5	X	X	[illegible]	5	3	2	X	X	6	6	6	6	X	X
X	X	3	3	5	[illegible]	X	X	[illegible]	6	3	1	X	X	5	6	6	6	X	X
X	X	3	3	5	6	X	X	[illegible]	6	3	1	X	X	6	6	6	6	X	X
X	X	3	2	4	5	X	X	[illegible]	6	3	1	1	3	6	6	6	6	X	X
X	X	3	4	[illegible]	6	X	X	[illegible]	6	3	1	1	2	1		2	6	X	X
X	X	3	5		6	X	X	[illegible]	6	[illegible]	1	1	4	3	4	4	5	X	X
X	X		2	5	[illegible]	X	X	[illegible]	6	3	1	2	5	2	2	2	6	X	X
X	X	4		[illegible]	6	X	X	[illegible]	6	3	1	4		6	6	6	6	X	X
X	X	4	5	6	[illegible]	X	X	[illegible]	6	3	1	[illegible]	1	[illegible]	6	6	6	X	X
X	X			6	[illegible]	X	X	[illegible]	6	3	1	6	2	[illegible]	6	6	6	X	X
X	X			[illegible]	[illegible]	X	X	[illegible]	[illegible]	3	1		[illegible]	6	6	6	6	X	X
X	X			[illegible]	[illegible]	X	X	[illegible]	[illegible]	3	1		4	6	6	6	6	X	X
X	X			[illegible]	[illegible]	X	X	[illegible]	[illegible]	3	1	[illegible]		[illegible]	[illegible]	6	[illegible]	X	X
	[illegible]	[illegible]	3	3		X	X	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	1		2	[illegible]	[illegible]	X
[illegible]	[illegible]			2		X	X	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]		2	[illegible]	X	X
	[illegible]	[illegible]	[illegible]	[illegible]		X	X	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X	[illegible]

Terrain Factor Family	Terrain Factor	Unit of Measure	Class Ranges 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	OL	SM	SP	GP		
	Depth of Thaw	In	0-24	24-48	>48					
Surface Geometry	Slope	Deg	0-3	3-6	6-12	12-265	>265			
	Terrain Approach	Deg	<100	100-125	125-150	150-165	165-180	180-200	200-210	210-220
	Step height	In	0-12	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1, 3.5, 6, 10 in. in diameter	Ft	0-5	5-10	10-20	20-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg	<145	145-155	155-165	165->180				
	Water Depth	Ft	3-6	6-10						



KEY

▲ SURFACE CONDITION SAMPLE SITE
● SURFACE GEOMETRY SAMPLE SITE
■ VEGETATION SAMPLE SITE

NOTE: SEE FIG. 2 FOR INDEX OF AREA COVERED

TERRAIN TYPE MAP
SEGMENT I

SCALE IN FEET

500 0 500

P

LEGEND

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App. Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom: Contact App. Angle	Water Depth
1	1	1	1	X	X	1	3	4	6	X	X
2	1	1	1	X	X	1	4	4	6	X	X
3	1	1	1	X	X	1	4	6	6	X	X
4	1	1	1	X	X	2	3	4	6	X	X
5	1	1	1	X	X	2	4	4	5	X	X
6	1	1	1	X	X	2	4	4	6	X	X
7	1	1	1	X	X	2	4	5	6	X	X
8	1	1	1	X	X	2	4	6	6	X	X
9	1	1	1	X	X	2	5	5	6	X	X
10	1	2	1	X	X	1	2	3	6	X	X
~~11~~	1	2	1	X	X	2	4	5	6	X	X
~~12~~	1	2	1	X	X	2	4	6	6	X	X
13	1	2	1	X	X	3	5	6	6	X	X
~~14~~	1	2	1	X	X	4	6	6	6	X	X
~~15~~	1	2	1	X	X	1	2	3	5	X	X
~~16~~	1	3	1	X	X	1	2	3	6	X	X
~~17~~	1	3	1	X	X	1	2	4	5	X	X
~~18~~	1	3	1	X	X	1	2	4	6	X	X
~~19~~	1	3	1	X	X	1	2	5	6	X	X
~~20~~	1	3	1	X	X	1	3	4	6	X	X
~~21~~	1	3	1	X	X	1	3	6	6	X	X
~~22~~	1	3	1	X	X	1	4	6	6	X	X
~~23~~	1	3	1	X	X	2	2	4	5	X	X
~~24~~	1	3	1	X	X	2	3	3	6	X	X
~~25~~	1	3	1	X	X	2	3	4	5	X	X
~~26~~	1	3	1	X	X	2	3	4	5	X	X
~~27~~	1	3	1	X	X	2	3	5	6	X	X
~~28~~	1	3	1	X	X	2	4	4	5	X	X
~~29~~	1	3	1	X	X	2	4	4	6	X	X
~~30~~	1	3	1	X	X	2	4	5	6	X	X
~~31~~	1	3	1	X	X	2	4	6	5	X	X
~~32~~	1	3	1	X	X	2	5	5	6	X	X
~~33~~	1	3	1	X	X	2	5	6	6	X	X
~~34~~	1	3	1	X	X	3	3	3	3	X	X
~~35~~	1	3	1	X	X	3	3	4	5	X	X
~~36~~	1	3	1	X	X	3	3	5	5	X	X
~~37~~	1	3	1	X	X	3	3	5	6	X	X
~~38~~	1	3	1	X	X	3	3	6	6	X	X
~~39~~	1	3	1	X	X	3	4	5	6	X	X
~~40~~	1	3	1	X	X	3	5	5	6	X	X
~~41~~	1	3	1	X	X	3	5	6	6	X	X
~~42~~	1	3	1	X	X	4	4	5	6	X	X
~~43~~	1	3	1	X	X	4	4	6	6	X	X
~~44~~	1	3	1	X	X	4	5	6	6	X	X
~~45~~	1	3	1	X	X	5	5	6	6	X	X
~~46~~	1	3	1	X	X	5	6	6	6	X	X
~~47~~	1	3	1	X	X	6	6	6	6	X	X
~~48~~	1	3	1	1	4	1	2	3	5	X	X
~~49~~	1	3	1	2	1	2	3	3	6	X	X
~~50~~	1	3	1	3	1	1	2	4	5	X	X
~~51~~	1	3	1	4	2	2	5	6	6	X	X
~~52~~	1	3	1	4	3	3	3	3	3	X	X
~~53~~	1	3	1	6	2	1	2	3	5	X	X
~~54~~	1	3	1	6	2	1	2	5	6	X	X
~~55~~	1	3	1	6	2	3	5	5	6	X	X
~~56~~	1	3	1	6	2	3	5	6	6	X	X
~~57~~	1	3	1	6	4	1		3	5	X	X
~~58~~	1	3	1	6	5	2	3	4	6	X	X
~~59~~	1	3	1	7	2	2	3	3	6	X	X
~~60~~	1	3	1	7	4	3	3	4	5	X	X
~~61~~	1	3	1	8	1	1		5	6	X	X
~~62~~	1	3	1	8	2	2	3	3	6	X	X
~~63~~	1	3	1	8	2	2	5	6	6	X	X
~~64~~	1	3	1	8	3	3	5	5	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App. Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10	Hydro Geom: Contact App. Angle	Water Depth
~~65~~	1	3	1	8	4	1	2	3	5	X	X
~~66~~	1	3	2	X	X	1	2	6	6	X	X
~~67~~	1	3	2	X	X	1	2	5	6	X	X
~~68~~	1	3	2	X	X	1	3	4	6	X	X
~~69~~	1	3	2	X	X	1	3	6	6	X	X
~~70~~	1	3	2	X	X	1	4	6	6	X	X
~~71~~	1	3	2	X	X	2	2	4	5	X	X
~~72~~	1	3	2	X	X	2	2	4	6	X	X
~~73~~	1	3	2	X	X	2	3	4	6	X	X
~~74~~	1	3	2	X	X	2	3	5	6	X	X
~~75~~	1	3	2	X	X	2	4	4	6	X	X
~~76~~	1	3	2	X	X	2	4	5	6	X	X
~~77~~	1	3	2	X	X	2	4	6	6	X	X
~~78~~	1	3	2	X	X	2	5	6	6	X	X
~~79~~	1	3	2	X	X	3	3	5	6	X	X
~~80~~	1	3	2	X	X	3	4	5	6	X	X
~~81~~	1	3	2	X	X	3	5	5	6	X	X
~~82~~	1	3	2	X	X	3	5	6	6	X	X
~~83~~	1	3	2	X	X	4	4	5	6	X	X
~~84~~	1	3	2	X	X	4	4	6	6	X	X
~~85~~	1	3	2	X	X	4	5	6	6	X	X
~~86~~	1	3	2	X	X	5	5	6	6	X	X
~~87~~	1	3	2	X	X	6	6	6	6	X	X
~~88~~	1	3	3	X	X	1	2	4	5	X	X
~~89~~	1	3	3	X	X	1	2	4	6	X	X
~~90~~	1	3	3	X	X	1	2	5	6	X	X
~~91~~	1	3	3	X	X	1	3	4	6	X	X
~~92~~	1	3	3	X	X	1	3	6	6	X	X
~~93~~	1	3	3	X	X	1	4	6	6	X	X
~~94~~	1	3	3	X	X	2	2	4	5	X	X
~~95~~	1	3	3	X	X	2	2	4	6	X	X
~~96~~	1	3	3	X	X	2	3	4	6	X	X
~~97~~	1	3	3	X	X	2	3	5	6	X	X
~~98~~	1	3	3	X	X	2	4	4	6	X	X
~~99~~	1	3	3	X	X	2	4	5	6	X	X
~~100~~	1	3	3	X	X	2	4	6	6	X	X
~~101~~	1	3	3	X	X	3	4	5	6	X	X
~~102~~	1	3	3	X	X	3	5	5	6	X	X
~~103~~	1	3	3	X	X	3	5	6	6	X	X
~~104~~	1	3	3	X	X	4	4	5	6	X	X
~~105~~	1	3	3	X	X	4	4	6	6	X	X
~~106~~	1	3	3	X	X	4	5	6	6	X	X
~~107~~	1	3	3	X	X	6	6	6	6	X	X
~~108~~	1	3	4	X	X	1	3	4	6	X	X
~~109~~	1	3	4	X	X	1	4	6	6	X	X
~~110~~	1	3	4	X	X	2	2	4	5	X	X
~~111~~	1	3	4	X	X	2	3	4	6	X	X
~~112~~	1	3	4	X	X	2	3	5	6	X	X
~~113~~	1	3	4	X	X	2	4	4	6	X	X
~~114~~	1	3	4	X	X	2	4	5	6	X	X
~~115~~	1	3	4	X	X	2	4	6	6	X	X
~~116~~	1	3	4	X	X	3	4	5	6	X	X
~~117~~	1	3	4	X	X	4	4	5	6	X	X
~~118~~	1	3	4	X	X	4	4	6	6	X	X
~~119~~	1	3	4	X	X	6	6	6	6	X	X
~~120~~	1	3	5	X	X	2	2	4	5	X	X
~~121~~	1	3	5	X	X	2	3	5	6	X	X
~~122~~	1	3	5	X	X	6	6	6	6	X	X
~~123~~	2	2	1	X	X	1	3	6	6	X	X
~~124~~	2	2	1	X	X	1	5	6	6	X	X
~~125~~	2	2	1	X	X	2	5	6	6	X	X
~~126~~	2	2	1	X	X	4	5	5	6	X	X
~~127~~	2	2	1	X	X	5	5	6	6	X	X
~~128~~	2	2	1	X	X	5	6	6	6	X	X

Terrain *Unit	Surface Condition: Type	Surface Condition: Depth of Thaw	Surface Geometry: Slope	Surface Geometry: App Angle	Surface Geometry: Step Height	Vegetation: Stem Diam ≥ (In.) 1	3	6	10
~~129~~	2	2	1	X	X	6	6	6	6
~~130~~	2	2	1	X	X	1	4	6	6
~~131~~	2	2	2	X	X	4	5	5	6
~~132~~	2	2	3	X	X	5	6	6	6
~~133~~	3	1	1	X	X	6	6	6	6
~~134~~	3	1	2	X	X	6	6	6	6
~~135~~	3	2	1	X	X	1	3	6	6
~~136~~	3	2	1	X	X	1	5	6	6
~~137~~	3	2	1	X	X	2	4	4	6
~~138~~	3	2	1	X	X	2	5	6	6
~~139~~	3	2	1	X	X	3	3	4	5
~~140~~	3	2	1	X	X	3	5	5	6
~~141~~	3	2	1	X	X	4	5	6	6
~~142~~	3	2	1	X	X	4	6	6	6
~~143~~	3	2	1	X	X	5	6	6	6
~~144~~	3	2	2	X	X	1	5	6	6
~~145~~	3	2	2	X	X	2	4	4	6
~~146~~	3	2	2	X	X	3	5	5	6
~~147~~	3	2	2	X	X	5	6	6	6
~~148~~	3	2	2	X	X	6	6	6	6
~~149~~	3	2	3	X	X	1	5	6	6
~~150~~	3	2	3	X	X	3	5	5	6
~~151~~	3	2	3	X	X	5	6	6	6
~~152~~	3	2	4	X	X	1	5	6	6
~~153~~	3	3	1	X	X	2	2	4	6
~~154~~	3	3	1	X	X	2	3	5	6
~~155~~	3	3	1	X	X	3	3	5	5
~~156~~	3	3	1	X	X	5	5	6	6
~~157~~	3	3	X	X	X	6	6	6	6
~~158~~	3	3	X	X	X	6	6	6	6
~~159~~	3	3	2	X	X	2	3	5	6
~~160~~	3	3	2	X	X	5	6	6	6
~~161~~	3	3	3	X	X	2	3	5	6
~~162~~	3	3	3	X	X	3	3	5	5
~~163~~	3	3	3	X	X	4	5	5	6
~~164~~	3	3	4	X	X	4	5	5	6
~~165~~	4	3	1	X	X	1	2	5	6
~~166~~	4	3	1	X	X	1	2	6	6
~~167~~	4	3	1	X	X	1	3	4	6
~~168~~	4	3	1	X	X	2	2	4	5
~~169~~	4	3	1	X	X	2	2	5	6
~~170~~	4	3	1	X	X	2	3	4	5
~~171~~	4	3	1	X	X	2	3	4	6
~~172~~	4	3	1	X	X	2	3	5	6
~~173~~	4	3	1	X	X	2	4	4	6
~~174~~	4	3	1	X	X	2	4	6	6
~~175~~	4	3	1	X	X	2	5	6	6
~~176~~	4	3	1	X	X	3	3	3	5
~~177~~	4	3	1	X	X	3	3	4	5
~~178~~	4	3	1	X	X	3	3	5	5
~~179~~	4	3	1	X	X	3	3	5	6
~~180~~	4	3	1	X	X	3	4	4	5
~~181~~	4	3	1	X	X	3	4	5	6
~~182~~	4	3	1	X	X	3	5	5	6
~~183~~	4	3	1	X	X	4	4	5	6
~~184~~	4	3	1	X	X	4	5	5	6
~~185~~	4	3	1	X	X	4	5	6	6
~~186~~	4	3	1	X	X	5	5	6	6
~~187~~	4	3	1	X	X	5	6	6	6
~~188~~	4	3	1	X	X	6	6	6	6
~~189~~	4	3	2	X	X	6	5	6	6
~~190~~	4	3	1	2	3	1	3	3	5
~~191~~	4	3	1	3	1	2	2	4	5
~~192~~	4	3	1	3	1	6	6	6	6

*Each terrain unit represents a combination of numbers indicating the mapping classes (or absence) of the following factors soil type, depth of thaw, slope, approach angle, step height, spacing of stem diameters ≥1, 3, 6, and 10 in., contact approach angle, and water depth. Mapping class ranges of each factor are shown to the right.

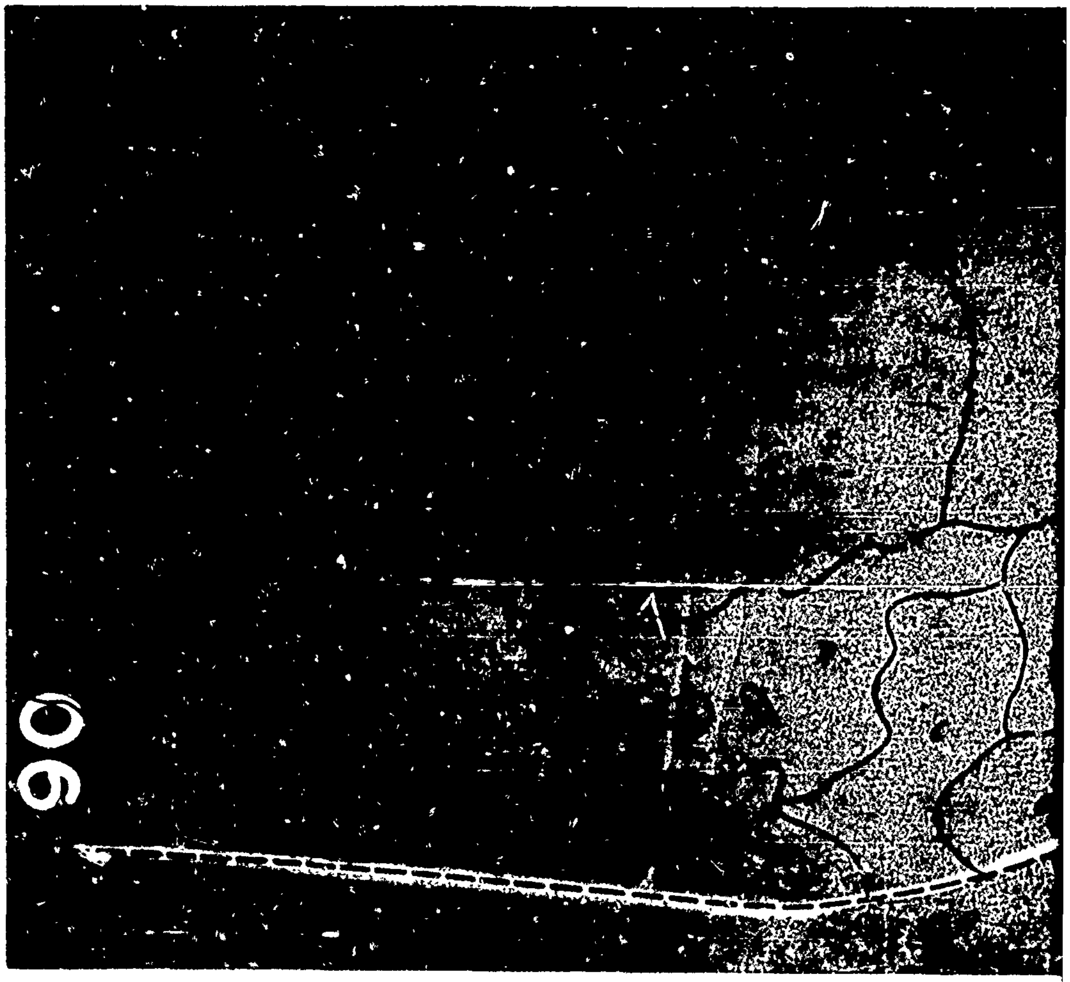
~~111~~ Unit not mapped

X Factor absent

e Geometry		Vegetation				Hydro Geom			Surface Condition		Surface Geometry			Vegetation				Hydro Geom	
App. Angle	Step Height	Stem Diam ≥ (In.) 1	3	6	10	Contact App. Angle	Water Depth	Terrain Unit	Type	Depth of Thaw	Slope	App. Angle	Step Height	Stem Diam ≥ (In.) 1	3	6	10	Contact App.	Water Depth
X	X	6	6	6	6	X	X	[illegible]	4	3	1	3	2	2	3	5	6	X	X
X	X	1	5	6	6	X	X	[illegible]	4	3	1	3	3	2	2	4	5	X	X
X	X	4	5	5	6	X	X	[illegible]	4	3	1	4	2	2	2	4	5	X	X
X	X	5	6	6	6	X	X	[illegible]	4	3	1	4	3	1	2	6	6	X	X
X	X	6	6	6	6	X	X	[illegible]	4	3	1	4	4	3	4	4	5	X	X
X	X	6	6	6	6	X	X	[illegible]	4	3	1	5	5	1	2	6	6	X	X
X	X	1	3	6	6	X	X	[illegible]	4	3	1	5	5	2	3	4	5	X	X
X	X	1	5	6	6	X	X	[illegible]	4	3	1	6	2	2	3	4	5	X	X
X	X	2	4	4	6	X	X	[illegible]	4	3	1	7	4	2	2	4	5	X	X
X	X	[illegible]	5	6	6	X	X	[illegible]	4	3	1	8	3	2	3	3	6	X	X
X	X	3	3	4	5	X	X	[illegible]	4	3	1	8	3	2	3	5	6	X	X
X	X	3	5	5	6	X	X	[illegible]	4	3	1	8	5	2	2	4	5	X	X
X	X	4	5	6	6	X	X	[illegible]	4	3	2	X	X	1	2	5	6	X	X
X	X	4	6	6	6	X	X	[illegible]	4	3	2	X	X	1	3	4	6	X	X
X	X	5	6	6	6	X	X	[illegible]	4	3	2	X	X	2	3	4	5	X	X
X	X	1	5	6	6	X	X	[illegible]	4	3	2	X	X	2	3	4	6	X	X
X	X	2	4	4	6	X	X	[illegible]	4	3	2	X	X	2	3	5	6	X	X
X	X	3	5	5	6	X	X	[illegible]	4	3	2	X	X	3	3	5	6	X	X
X	X	5	6	6	6	X	X	[illegible]	4	3	2	X	X	3	4	5	6	X	X
X	X	6	6	6	6	X	X	[illegible]	4	3	2	X	X	4	4	5	6	X	X
X	X	1	5	6	6	X	X	[illegible]	4	3	2	X	X	4	5	5	6	X	X
	X	3	5	5	6	X	X	[illegible]	4	3	2	X	X	4	5	6	6	X	X
X	X	5	6	6	6	X	X	[illegible]	4	3	2	X	X	5	5	6	6	X	X
X	X	1	5	6	6	X	X	[illegible]	4	3	3	X	X	1	2	5	6	X	X
X	X	2	2	4	6	X	X	[illegible]	4	3	3	X	X	1	3	4	6	X	X
X	X	2	3	5	6	X	X	[illegible]	4	3	3	X	X	2	3	4	5	X	X
X	X	3	3	5	5	X	X	[illegible]	4	3	3	X	X	2	3	4	6	X	X
X	X	5	5	6	6	X	X	[illegible]	4	3	3	X	X	2	3	5	6	X	X
X	X	6	6	6	6	4	1	[illegible]	4	3	3	X	X	3	3	5	6	X	X
X	X	6	6	6	6	4	2	[illegible]	4	3	3	X	X	3	4	5	6	X	X
X	X	2	3	5	6	X	X	[illegible]	4	3	3	X	X	4	4	5	6	X	X
X	X	5	6	6	6	X	X	[illegible]	4	3	3	X	X	4	5	5	6	X	X
X	X	2	3	5	6	X	X	[illegible]	4	3	3	X	X	4	6	6	6	X	X
X	X	3	3	5	5	X	X	[illegible]	4	3	3	X	X	5	5	6	6	X	X
X	X	4	5	5	6	X	X	[illegible]	4	3	4	X	X	2	3	5	6	X	X
X	X	4	5	5	6	X	X	[illegible]	4	3	4	X	X	3	3	5	6	X	X
X	X	1	2	5	6	X	X	[illegible]	4	3	4	X	X	3	3	6	6	X	X
X	X	1	2	6	6	X	X	[illegible]	4	3	4	X	X	3	4	5	6	X	X
X	X	1	3	4	6	X	X	[illegible]	4	3	4	X	X	4	5	5	6	X	X
X	X	2	2	4	5	X	X	[illegible]	4	3	5	X	X	2	3	5	6	X	X
X	X	2	2	5	6	X	X	[illegible]	4	3	5	X	X	3	4	5	6	X	X
X	X	2	3	4	5	X	X	[illegible]	4	3	5	X	X	4	5	5	6	X	X
X	X	2	3	4	6	X	X	[illegible]	5	3	1	X	X	1	2	4	6	X	X
X	X	2	3	5	6	X	X	[illegible]	5	3	1	X	X	1	2	5	6	X	X
X	X	2	4	4	6	X	X	[illegible]	5	3	1	X	X	3	3	5	6	X	X
X	X	2	4	5	6	X	X	[illegible]	5	3	1	X	X	3	5	5	6	X	X
X	X	2	5	6	6	X	X	[illegible]	5	3	1	X	X	5	5	6	6	X	X
X	X	3	3	3	5	X	X	[illegible]	5	3	1	X	X	5	6	6	6	X	X
X	X	3	3	4	5	X	X	[illegible]	5	3	2	X	X	6	5	6	6	X	X
X	X	3	3	5	5	X	X	[illegible]	5	3	1	X	X	5	6	6	6	X	X
X	X	3	3	5	6	X	X	[illegible]	6	3	1	X	X	6	6	5	6	X	X
X	X	3	4	4	5	X	X	[illegible]	6	3	1	1	3	6	6	6	6	X	X
X	X	3	4	5	6	X	X	[illegible]	6	3	1	1	4	1	2	4	6	X	X
X	X	3	5	3	6	X	X	[illegible]	6	3	1	1	4	3	4	4	5	X	X
X	X	4	4	5	6	X	X	[illegible]	6	3	1	1	5	1	2	4	6	X	X
X	X	4	5	5	6	X	X	[illegible]	6	3	1	4	2	6	6	6	6	X	X
X	X	4	5	6	6	X	X	[illegible]	6	3	1	6	1	6	6	6	6	X	X
X	X	5	5	6	6	X	X	[illegible]	6	3	1	6	2	6	6	6	6	X	X
X	X	5	6	6	6	X	X	[illegible]	6	3	1	[illegible]	3	6	6	6	6	X	X
X	X	6	6	6	6	X	X	[illegible]	6	3	1	7	4	6	6	6	6	X	X
X	X	4	5	6	6	X	X	[illegible]	6	3	1	8	2	6	6	6	6	X	X
2	3	3	3	3	5	X	X	[illegible]	6	3	1	8	4	1	2	4	6	X	X
3	1	2	2	4	5	X	X	[illegible]	6	3	1	8	5	1	2	4	6	X	X
3	1	6	6	6	6	X	X	[illegible]	6	3	1	8	5	6	6	6	6	X	X

Terrain Factor Family	Terrain Factor	Unit of Measure	Class Ranges 1	2	3	4	5	6	7	8
Soil	Soil Type	Type	ML	Muskeg	OL	SM	SP	GP		
	Depth of Thaw	In	0-24	24-42	>42					
Surface Geometry	Slope	Deg	0-3	3-6	6-12	12-26.5	>26.5			
	Terrain Approach	Deg	<100	100-125	125-150	150-165	165-180	180-200	200-210	210->220
	Step Height	In.	0-12	12-24	24-36	36-48	>48			
Vegetation	Spacing of stems ≥ 1,3,6, & 10 in. in diameter	Ft	0-5	5-10	10-20	20-30	>30	Absent		
Hydrologic Geometry	Contact Approach	Deg.	<145	145-155	155-165	165->180				
	Water Depth	Ft	3-6	6-10						

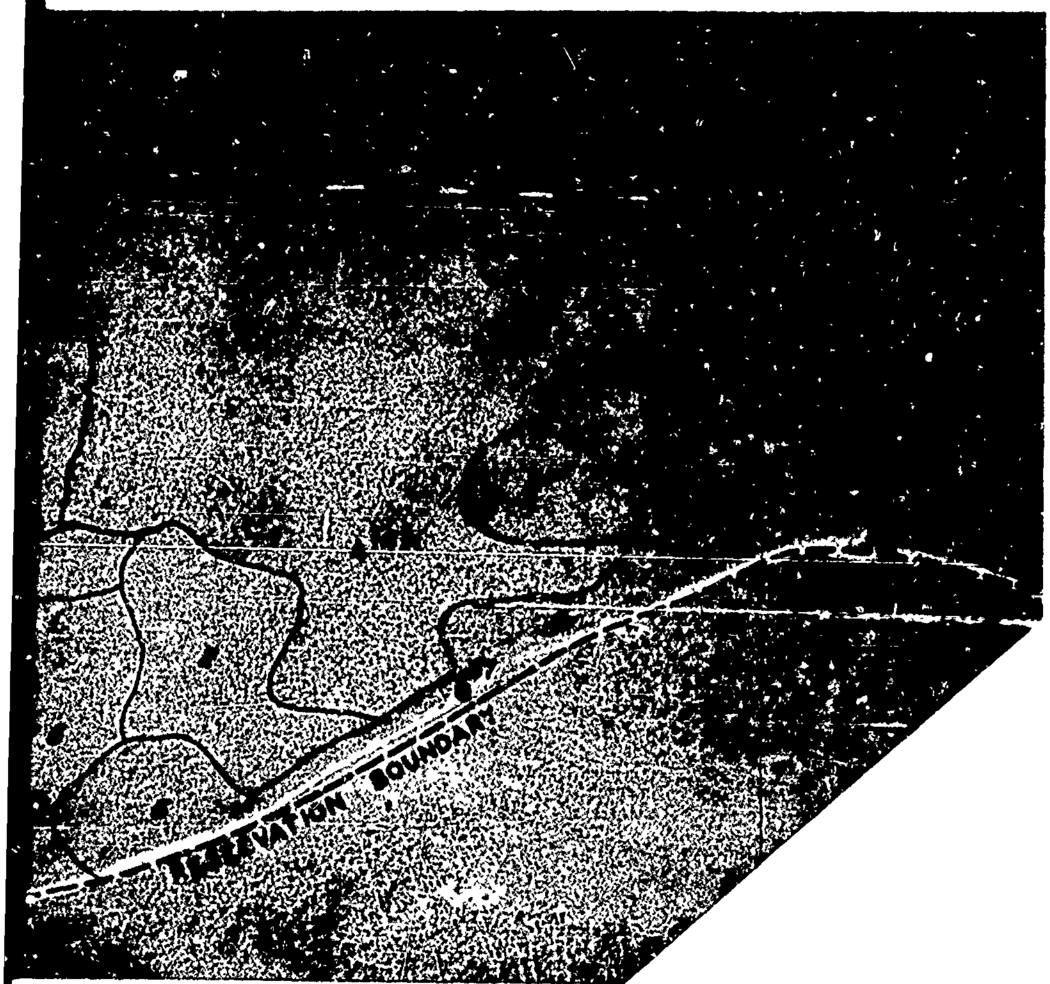
N



KEY

▲ SURFACE CONDITION SAMPLE SITE
● SURFACE GEOMETRY SAMPLE SITE
■ VEGETATION SAMPLE SITE

NOTE: SEE FIG. 2 FOR INDEX OF AREA COVERED

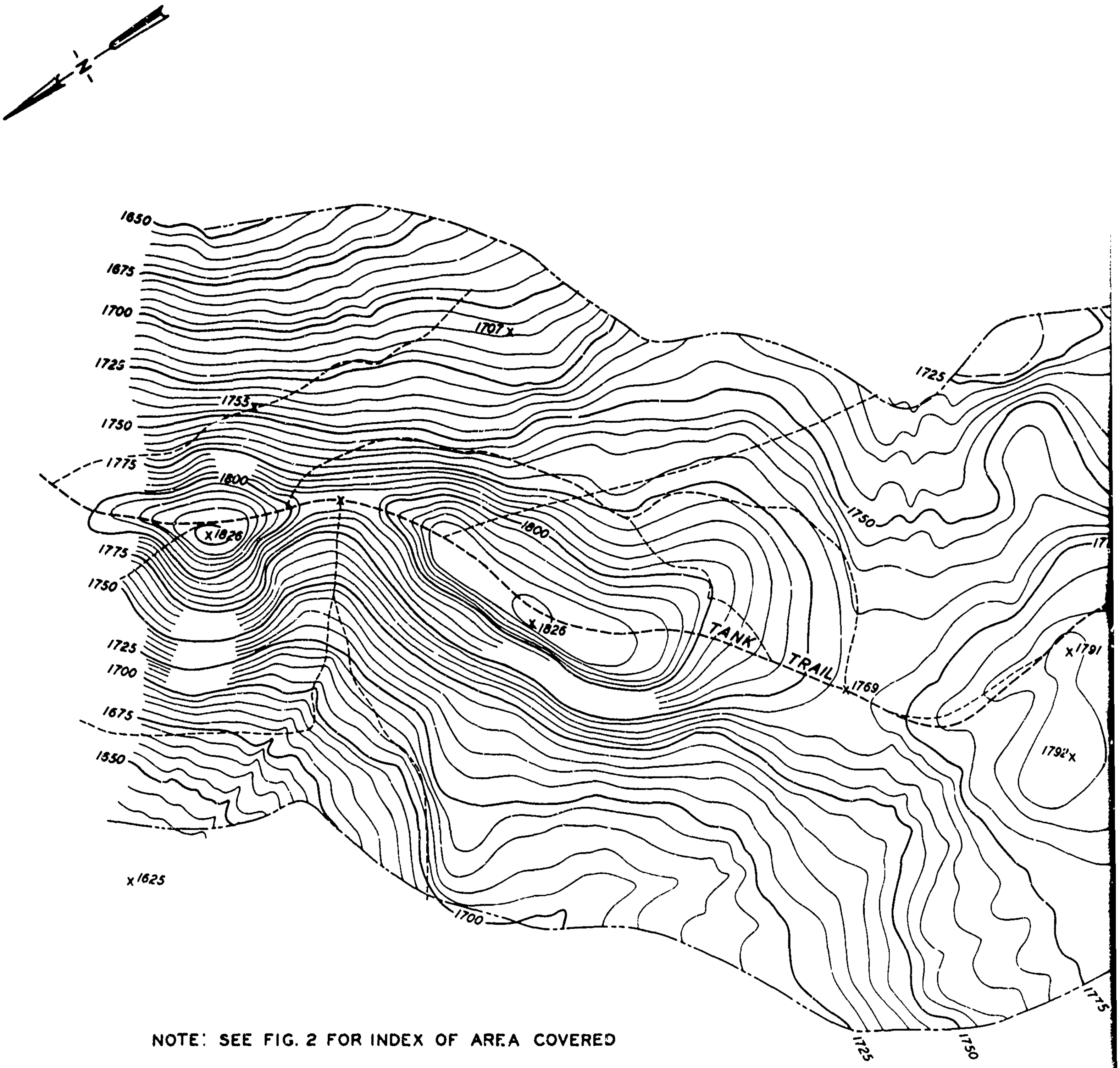


TERRAIN TYPE MAP
SEGMENT J

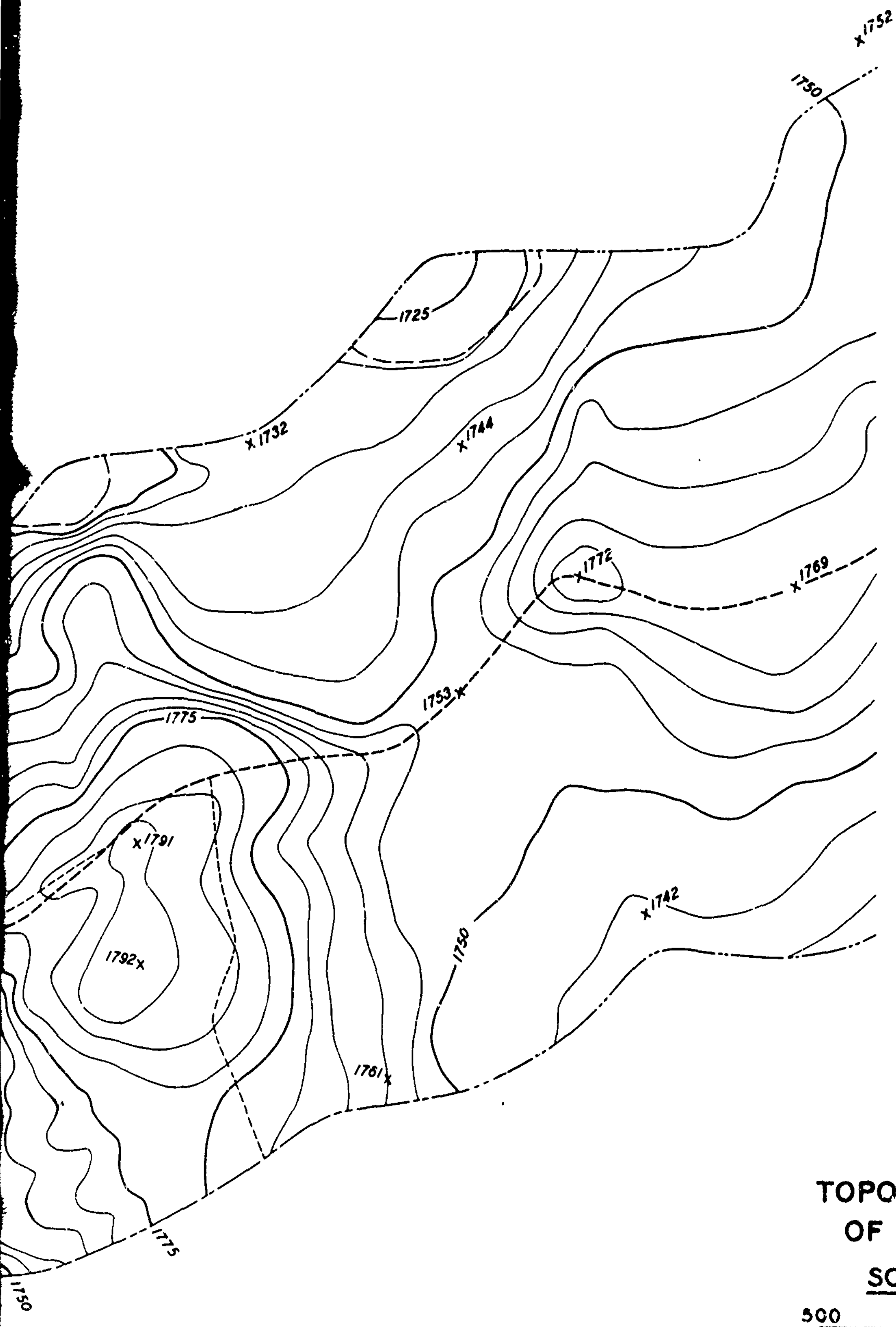
SCALE IN FEET

500 0 500

PLATE



NOTE: SEE FIG. 2 FOR INDEX OF AREA COVERED



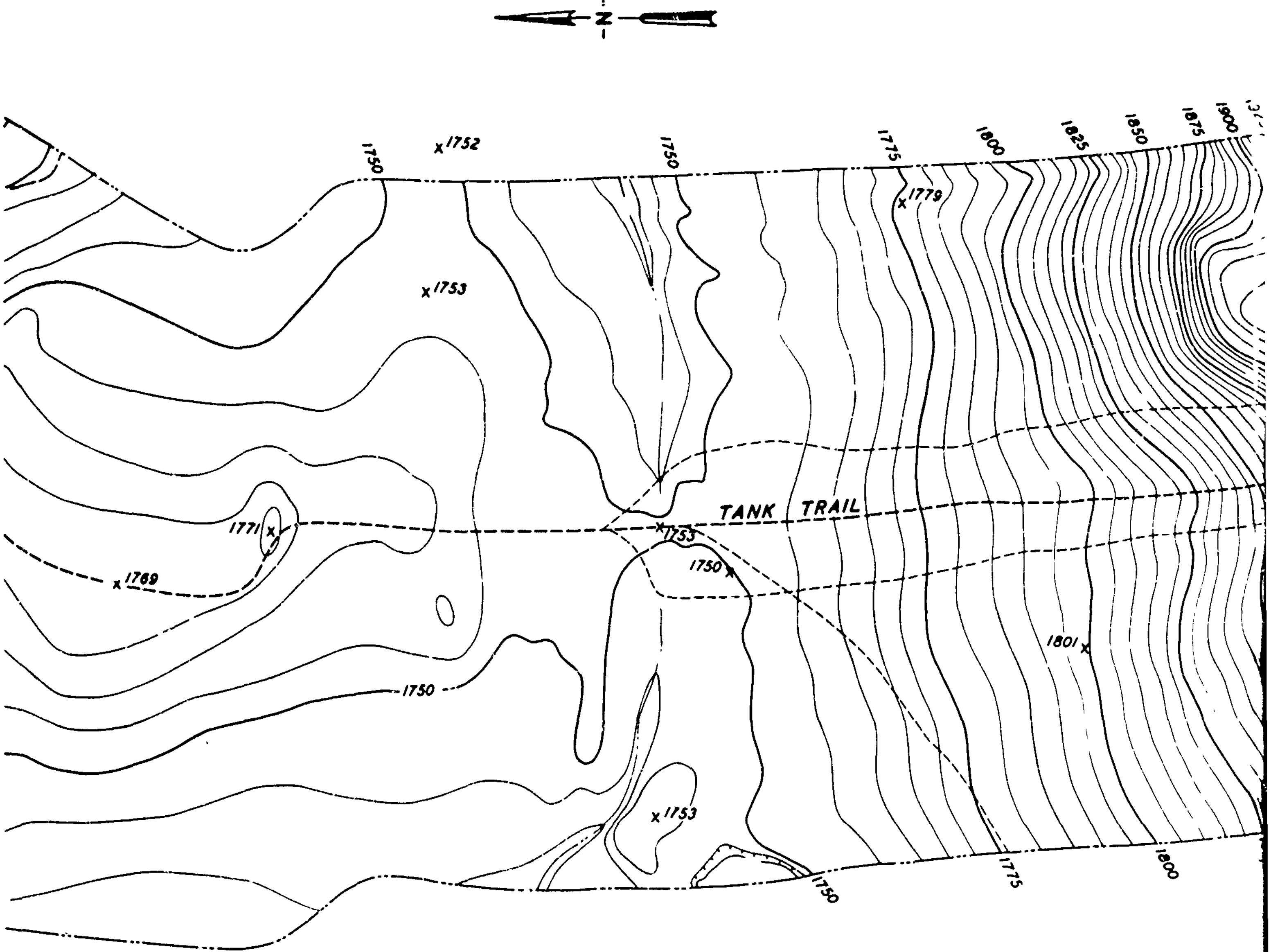
TOPOGRAPHIC MAP
OF SEGMENT F

SCALE IN FEET

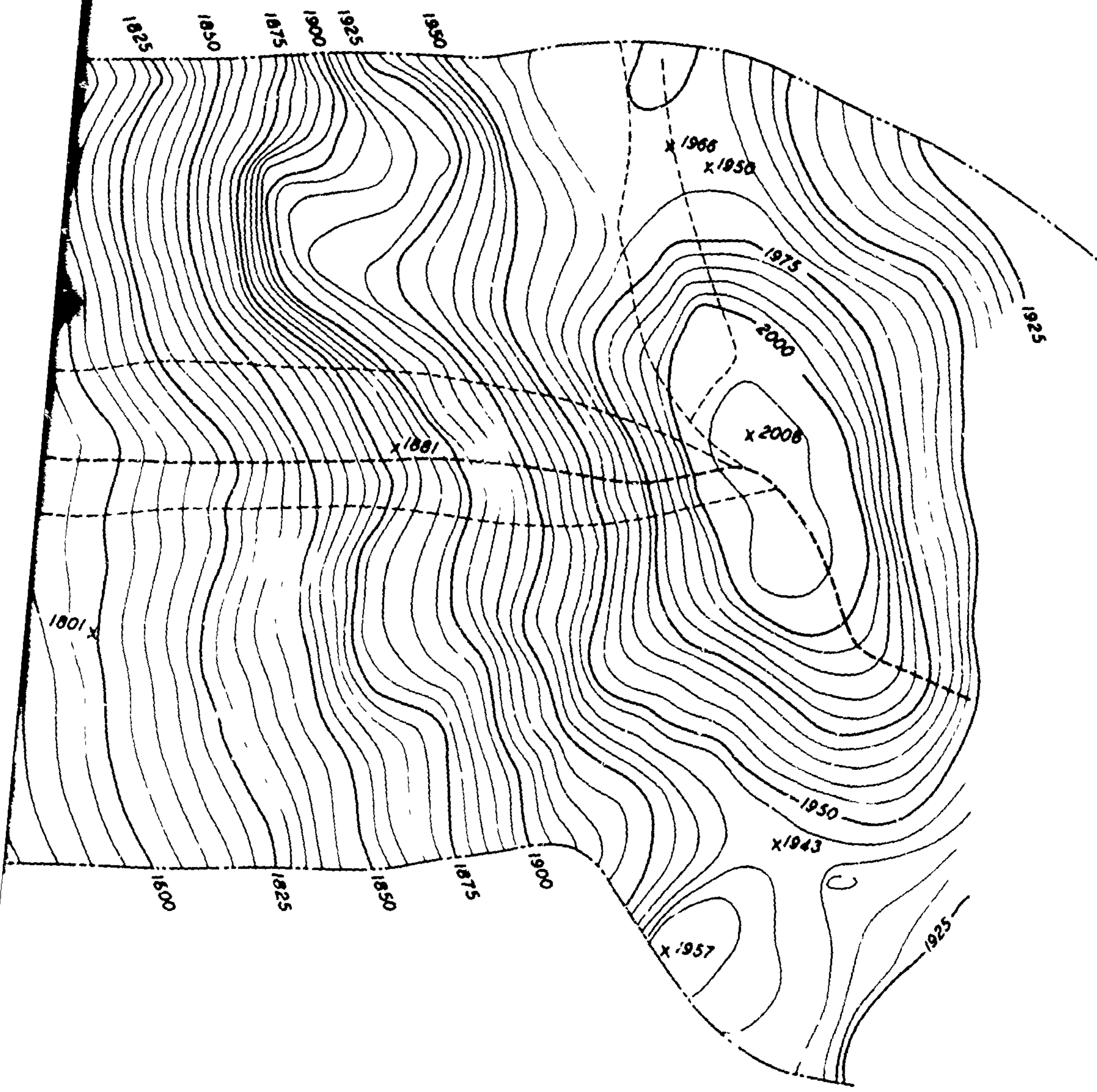
500 0 500

PLATE 11

13



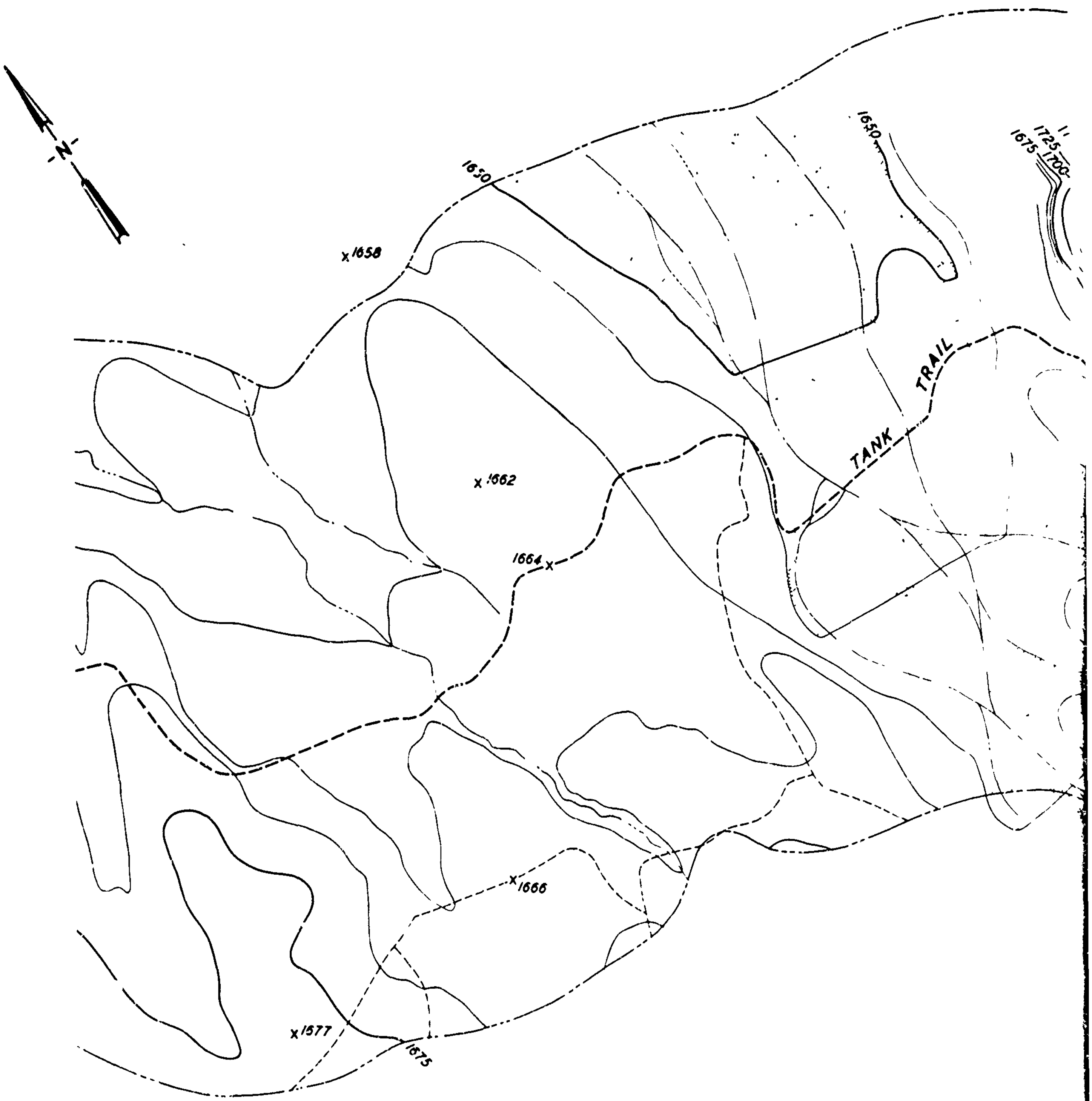
NOTE: SEE FIG. 2 FOR INDEX OF AREA COVERED



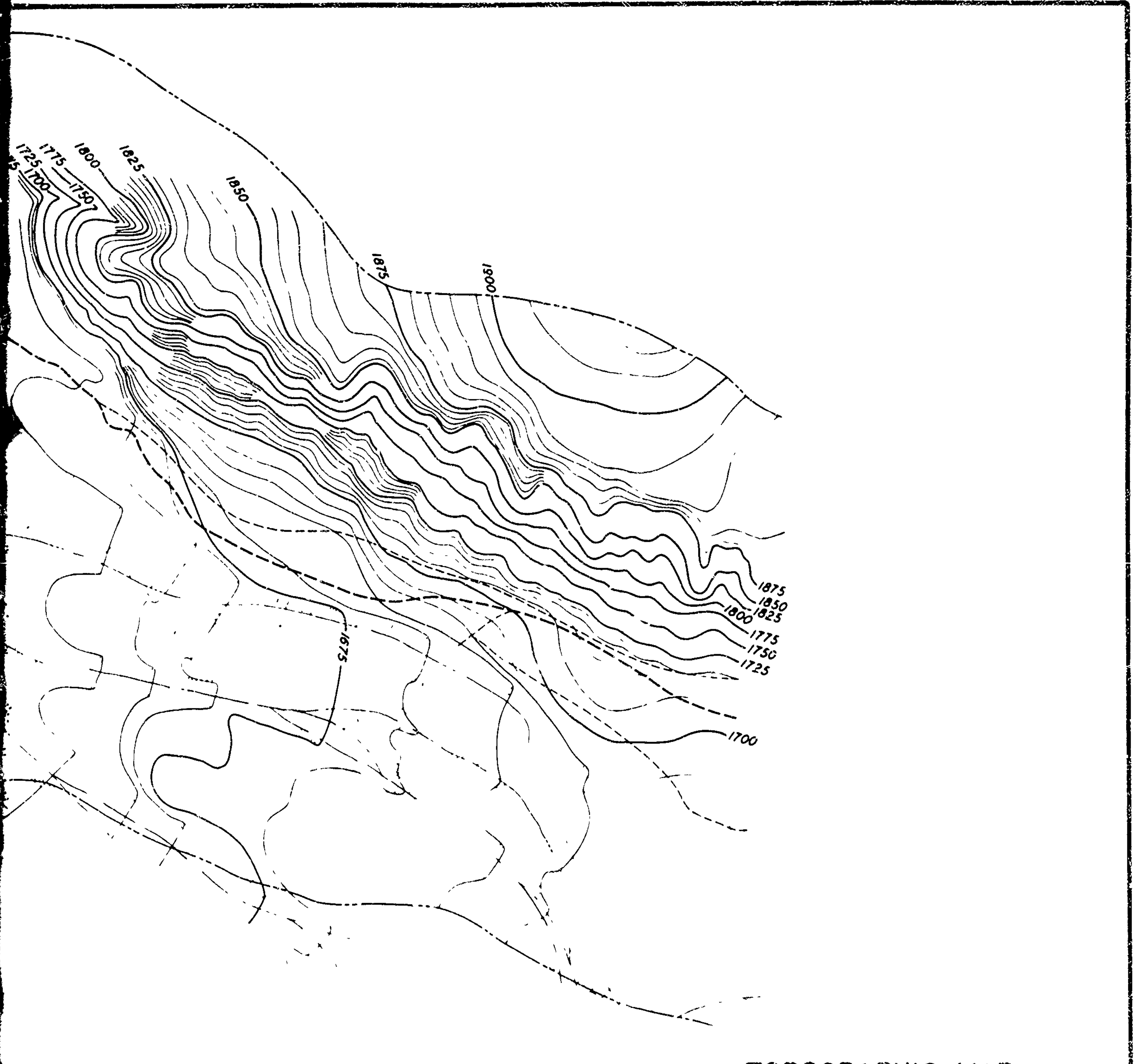
TOPOGRAPHIC MAP
OF SEGMENT G

SCALE IN FEET

PLATE 12



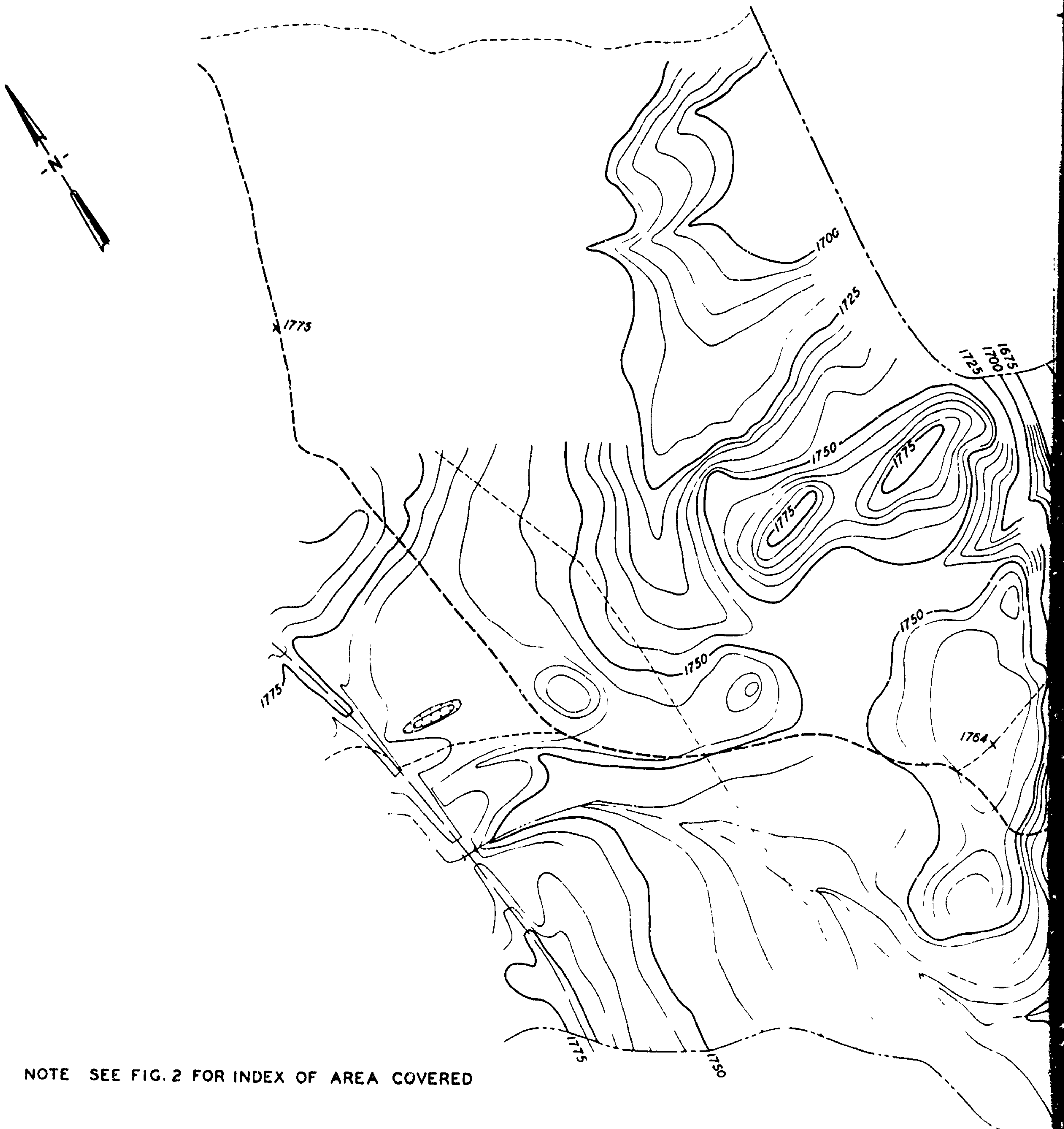
NOTE: SEE FIG. 2 FOR INDEX OF AREA COVERED



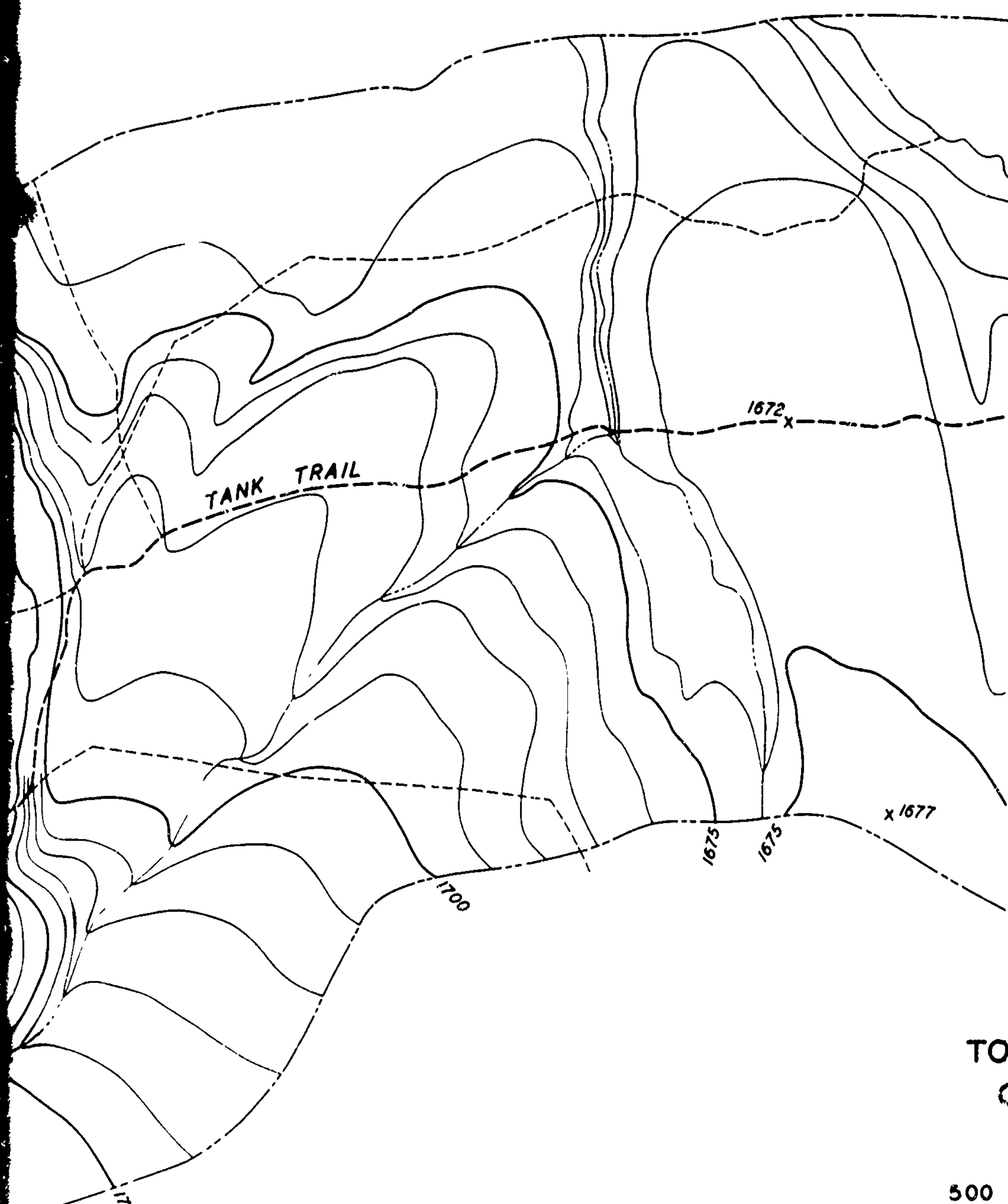
TOPOGRAPHIC MAP
OF SEGMENT H

SCALE IN FEET

500 0 500



NOTE SEE FIG. 2 FOR INDEX OF AREA COVERED



TOPOGRAPHIC MAP
OF SEGMENT I

SCALE IN FEET

500 0 500

PLATE 14

B

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1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Engineer Waterways Experiment Station Vicksburg, Mississippi	2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP

3. REPORT TITLE

TERRAIN EVALUATION OF A PORTION OF THE FORT GREELY AUTOMOTIVE TEST COURSE

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)
Final report

5. AUTHOR(S) (Last name, first name, initial)
Shamburger, John H.
Kolb, Charles R.
Woods, Harry K.

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1966	67	7

8a. CONTRACT OR GRANT NO. b. PROJECT NO. U. S. Army Arctic Test Center Order No. 5016-1 c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) Miscellaneous Paper No. 3-861 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)

10. AVAILABILITY/LIMITATION NOTICES
This document is subject to special export controls and each transmittal to foreign governments or foreign nationals may be made only with prior approval of U. S. Army Engineer Waterways Experiment Station.

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
	U. S. Army Arctic Test Center Fort Greely, Alaska

13. ABSTRACT

A method for classifying and mapping terrain features pertinent to off-road mobility in selected temperate, tropical, and desert areas was applied to subarctic terrain in this study. The area involved borders the Automotive Test Course of the U. S. Army Arctic Test Center at Fort Greely, Alaska, and is roughly 2000 ft wide and 15 miles long. Conditions mapped were those prevalent during the late summer. The classification and mapping method proved satisfactory with only minor modifications. Terrain factors unique to cold regions which require additional research before they can be properly classified and mapped for mobility test purposes include depth of thaw, snow depth, snow type, ice thickness, and stream turbidity.

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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Terrain						
Subarctic regions						

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